



FRIDAY, FEBRUARY 27, 1880.

## Contributions.

## The St. Lawrence Railroad on the Ice.

MONTREAL, Feb. 11, 1880.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Having noticed in one of your last issues a description of the "winter railroad" over the St. Lawrence, between the



Fig. 1.

Quebec, Montreal, Ottawa & Occidental Railroad at Montreal and the Southeastern Railroad at Longueuil. I have prepared the following schedules, which you may publish

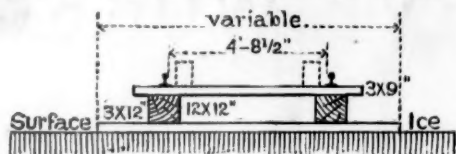


Fig. 2.

if you see fit. Fig. 1 is a general plan, the axis of the road being indicated across the river. Fig. 2 is a cross-section of the road, fig. 3 is an elevation and fig. 4 a plan of the road.



Fig. 3.

From these sketches you will see that the structure is a primitive one, there being no guard timbers.

The wood generally used is tamarack. The stringers are

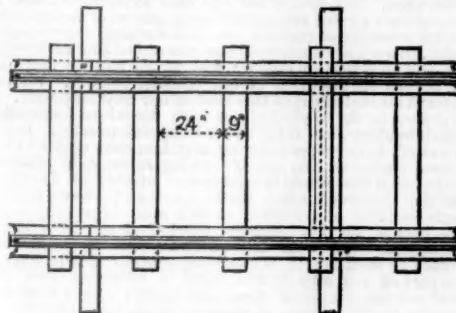


Fig. 4.

12 x 12 in. x 21 ft. to 25 ft. long, breaking joints. These are laid on cross-pieces 3 x 8 to 12 in. x 8 ft. long (about). The cross-ties are 3 x 9 in. boards spiked to the stringers; they are 24 in. apart. The rails are 54 to 60 lbs. steel rails spliced with common fish-plates. The joints are irregularly disposed; some are suspended, some others are not.

A SUBSCRIBER.

## Transportation in Congress.

In the Senate on the 25th:

Mr. Harris, of Tennessee, introduced a bill which provides for the construction of another railroad in and across the Indian Territory, from Fort Smith, on the Arkansas line, to Arkansas City, on the Kansas line. The first section incorporates nine residents of Tennessee, seven residents of Kansas, and two residents of Arkansas, as a company to build and run the road, with a capital stock of \$2,500.

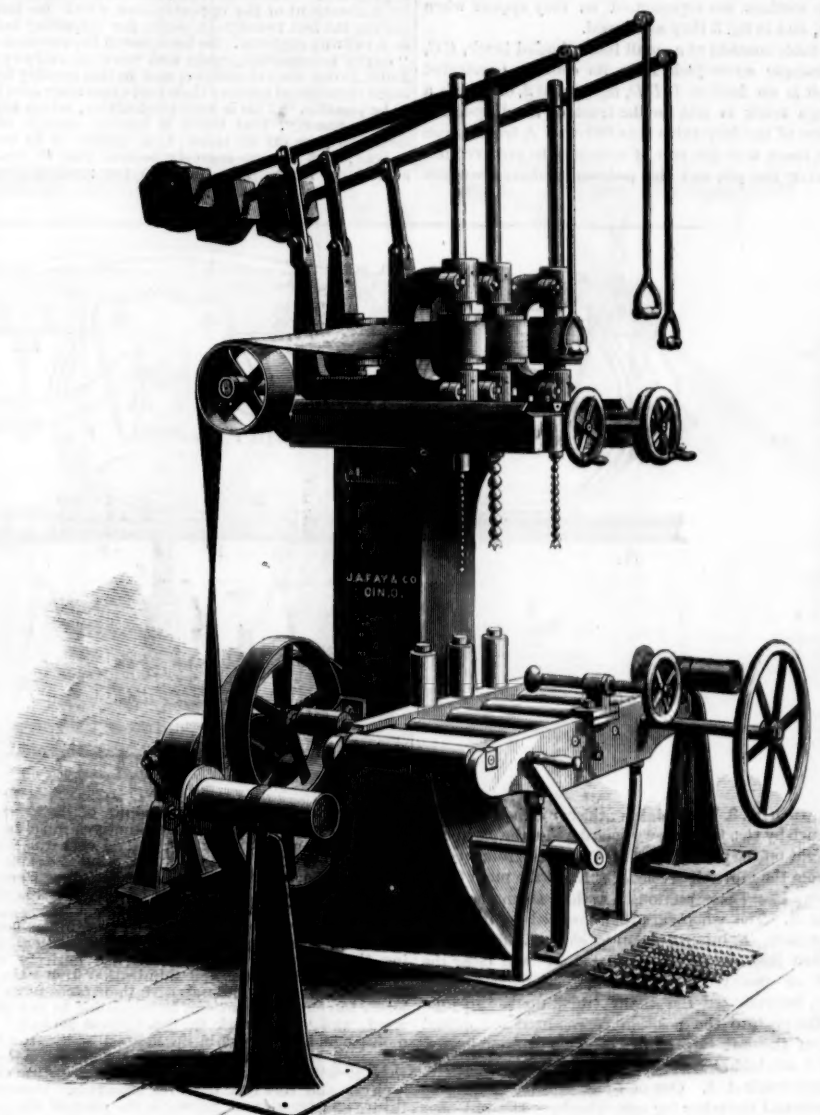
000. Section 2 grants to the company the right of way through the public lands and the Indian Territory, with power to take from the public lands in the territory adjacent to the road, for 200 feet on each side, material for building. Power is also given to select and locate lands not actually owned or occupied by other persons, for the purposes of depots, stations, shops, etc., not to exceed one section for every five miles of road. Land selected is to be paid for at \$1.25 per acre and patented to the company. The company is also empowered to locate and enter any timbered lands not already owned or occupied, situated within two miles of the road on each side, by paying the same price, but the amount taken is not to exceed one section for every five miles of road. The company must begin work within two years, and finish the road within four years. Section 5 provides that after the road's completion it may be consolidated with any other lines already built.

On the 25th the House Committee on Railways and Canals agreed to report favorably Mr. Upson's bill "authorizing the Secretary of War to contract with the San Antonio & Mexican Border Railroad Company for the immediate construction of a railroad from San Antonio to a point on the Rio Grande at or near the town of Laredo, for the purpose of establishing a postal and military highway from the United States military headquarters at San Antonio, Tex., to the Mexican border." The bill provides that the Secretary of the Treasury, for and in

ing to the strength necessary, or the strain upon the part to be sustained. The boring of these numerous holes in the different parts of the car in the most economical manner is a problem which the united efforts of the car-builders and machinery-constructors have, in some measure, solved, and, since the lengths and sizes of timbers are so different a machine cannot be made to perform the operation at once, one with a limited number of parts, with as convenient adjustments as possible, has been constructed.

The usual tool for car-boring has been the single spindle horizontal boring machine, which in a shop of limited capacity gives good results. Where the production is at such a rate as to require the closest economy in the readjustments and changing of bits, a machine is required which will carry several sizes of augers at once, each with its separate adjustment.

Such a machine has been recently designed and constructed by J. A. Fay & Co., wood-working machinery manufacturers of Cincinnati, O., which is being introduced into quite a number of shops. The accompanying engraving represents this machine. The special feature which is embodied in it that is of value to car-builders particularly, is



THREE-SPINDLE VERTICAL CAR BORING MACHINE.

With Power Feeding Rolls in Table, Lateral and Vertical Adjusting Spindles, etc.

the name of the United States, shall indorse and guarantee the bonds of the company to the extent of \$15,000 per mile of the whole road to be constructed, but not exceeding a total issue of \$2,400,000; the bonds to be made payable to the United States, either registered or coupon, payable in coin 30 years after date, with interest payable half-yearly in coin at the rate of 4 per cent. per annum; the United States to be secured by a first mortgage on the railway, with a provision in the mortgage for a sinking fund to be paid into the Treasury of 2 per cent. per annum in coin on the whole amount of bonds issued under the mortgage, until the bonds are all redeemed, or until the fund on deposit, with its accretions, shall be sufficient to redeem them. The bill further provides that the entire line, from San Antonio to the Rio Grande, shall be completed within two years from the signing of the contract; that the government shall have the preference in the matter of service, and the right to withhold payment therefor until the advances of money to the company are repaid; the amounts earned by the company for the transport of supplies, etc., for the government, and for carrying the mails, to be credited to the company; and no money is to be paid out of the Treasury for such service until the whole amount guaranteed for the company shall have been paid.

The committee also agreed to report favorably Mr. Willis' bill, which provides that after July 1, 1880, no tolls shall be charged or collected on the Louisville & Portland Canal; but the Secretary of War is authorized to draw his warrant from time to time upon the Secretary of the Treasury to pay the actual expenses of operating and keeping the canal in repair.

## Three-Spindle Vertical Car-Boring Machine.

In the construction of cars for railroads the bolts used for holding the different parts together require a variety in the sizes and position of holes into which they are placed, accord-

that the spindles are independently adjustable horizontally over the timber to be bored.

The whole machine is supported upon a substantial base with an auxiliary support for the outer end of the driving shaft. The power is conveyed to the boring spindles by one belt, which is carried over idlers, changing its direction from perpendicular to horizontal, and operating around the spindles by a series of idlers so arranged that a uniform tension of the belt is maintained in whatever position either or all of the spindles may be placed.

The vertical movement of the spindles is produced by the usual method of a lever, with a handle and a weight for counterbalancing the spindle and auger. Each spindle is in a separate frame, which carries it, with its lever and weight, by the movement of a screw, to any position desired until readjusted. This movement is the same in the three frames. A variation is made in the sizes of the pulleys on the spindles to give different speeds to the different sizes of augers.

The timber to be bored is placed upon a table constructed with rollers, driven simultaneously by a train of gearing, which is moved by a lever in the hand of the operator in either direction through a series of geared frictions, or the rollers can be moved by a hand-wheel placed at the front of the machine and convenient to the operator. There are also two auxiliary rollers on separate stands to support the end of long timbers.

This machine can be used upon any large timbers, as for bridge work, as well as for the specialty for which it is designed. For further information inquire of the manufacturers.



### Drop and Transfer Table for Removing Car Wheels.

The engravings published herewith represent a device, designed by Mr. John Kirby, the Master Car-Builder of the Lake Shore & Michigan Railway, for taking out the wheels of car trucks without removing the trucks from under the car. It has now been in use for a considerable time at a number of the principal stations on that line, and has worked very satisfactorily.

Fig. 1 is a section of the pit, containing the drop and transfer table, drawn transversely to the main track, the rails of which are represented in section by dotted lines at A A'. Fig. 2 is a plan of main track and transfer table, and fig. 3 is a section of pit showing a side view of the main track A A', on which a six-wheeled truck is represented.

The arrangement for removing the wheels consists in the first place of a pit to receive the drop-table, under the main track, a short section of the rails over the pit being made removable, so that the rails can be lowered down into the pit. The movable sections of the rails are represented by B B, figs. 2 and 3, and are hinged at one end to the main track and fastened at the other by a hasp and pin or lock. In fig. 2 these sections are represented as they appear when swung open, and in fig. 3 they are closed.

The drop-table consists of a small four-wheeled truck, C C, with a telescopic screw-jack, E, in its centre. Connected with the pit is an incline, D D D, figs. 1 and 2, on which a narrow-gauge track is laid for the truck of the drop-table. The operation of the drop-table is as follows: A truck is run on the main track with the pair of wheels to be removed immediately over the pit, and the pedestal tie-bars are taken

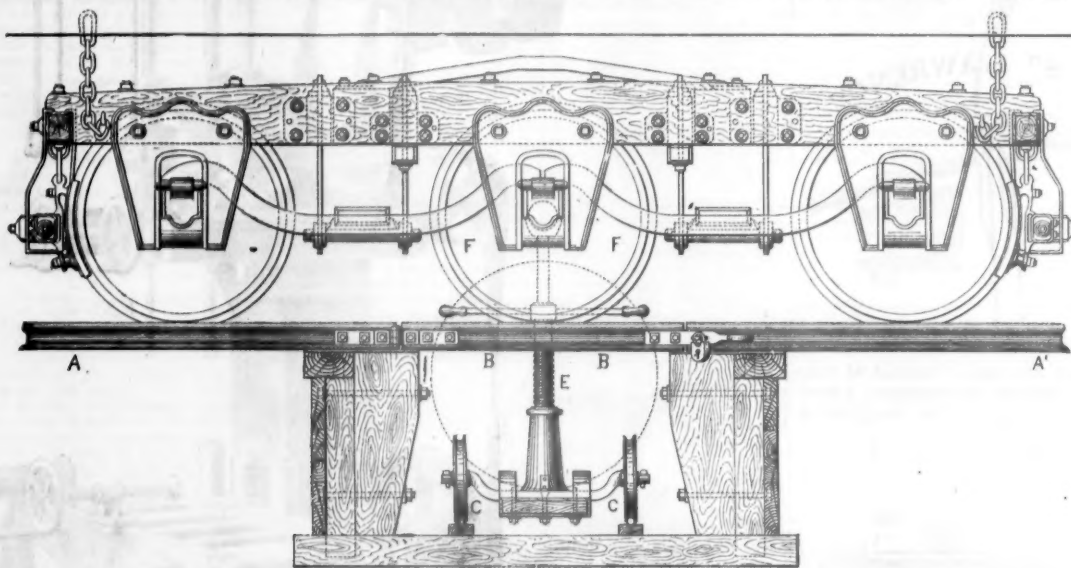


FIG. 3.

down, as shown in fig. 3. The weight of the car is then taken off from the trench by two jack-screws placed under the platform, and the weight on the pair of wheels, F F, to be removed, is lifted off from the movable sections, B B, of the main track by the screw, E. These sections are then swung open, as shown in fig. 2. The wheels are then lowered by means of the telescope-jack, E, into the position shown in fig. 1, and by the dotted lines in fig. 3, so that they will clear the under side of the truck pedestals. The transfer-table is then run, laterally to the main track, up the incline D D D, of the pit into the position represented by dotted lines at G, on the left side of fig. 1. Two pairs of tracks, H H and I I, are laid at right angles to the incline or parallel to the main track A A'. One of these tracks is to receive the old wheels and the other for new wheels. The old ones are run off from the drop-table and a new pair taken in and run down into the pit and put under the truck to take the place of those removed.

Formerly, in removing the middle wheels of six-wheeled trucks, the practice has been to elevate one end of the truck sufficiently to allow the wheels to pass under the spring-plank. This method is troublesome and dangerous in the winter when the ground is covered with snow and ice. The arrangement illustrated is equally useful in removing wheels from under loaded freight cars with wood trucks, or trucks with such jaws or boxes as require the removal of the king-bolt. It has proved to be particularly useful in removing the wheels from under sleeping-cars, which can be done in much less time than by the old method and without disturbing the occupants.

The mechanism of the apparatus is very simple. An ordinary telescopic jack-screw is used for raising and lowering the wheels. The screw of the jack should be 17 in. long and the stand 14 in. In localities where a pit is not admissible the same result can be attained by elevating the main track 20 inches. The device is not patented.

### English and American Locomotives.

We have received from New Zealand a copy of a paper just published, "presented to both houses of The General Assembly by command of his Excellency." This paper contains a correspondence respecting the relative merits of American and English locomotives, which passed in 1878 between Sir Julius Vogel, the Agent-General for New Zealand; Mr. R. M. Brereton, Mr. John Blackett, Mr. J. W. Maxwell, engineer in charge of North Island; Messrs. Neilson, of Glasgow; Messrs. Hemans, Falkner, and Tancred; and the Vulcan Foundry Company. It is a

curious document, and would hardly deserve much attention were it not that a persistent and unscrupulous attempt is being made by the agents of American houses to induce colonial engineers to buy American instead of English locomotives. The system adopted consists in assailing the general public, the members of the Legislature, directors and officers of railway companies—every one, in fact, who will listen—with a long string of arguments in favor of American and against English engines. It requires more discrimination than the non-technical public can possess to sift the wheat of the statements thus put forward from the chaff; and popular opinion has, ere now, driven orders into American hands which would have come to England, had the advice of competent engineers been acted upon. The correspondence before us affords an admirable example of the development of the system. We have no wish to assert that Mr. Brereton does not believe all that he has written, because we know that credulity and honesty of purpose are by no means incompatible the one with the other; but we are irresistibly driven to the conclusion that however sincere Mr. Brereton may be, he does not possess sufficient knowledge of his subject to be regarded as an authority.

The correspondence begins with a note from Sir Julius Vogel, stating that he incloses "for the information of the government a copy of a communication by Mr. R. M. Brereton on the subject of the superior working results of American locomotives as compared with English railway experience." Then comes Mr. Brereton's letter, which begins by a statement of the opportunities which he has enjoyed during the last twenty-six years for acquiring information as a railway engineer. He has come to the conclusion that we "ought to construct, equip and work our railway system in India, in our several colonies, and in this country too, in a far more economical manner than past experience here has shown to be possible." This is very good advice, which has only one defect—namely, that there is hardly enough of it. Mr. Brereton goes on to show how money is to be saved, it is true; but we can scarcely believe that he has not kept something back. His remedies for modern English and

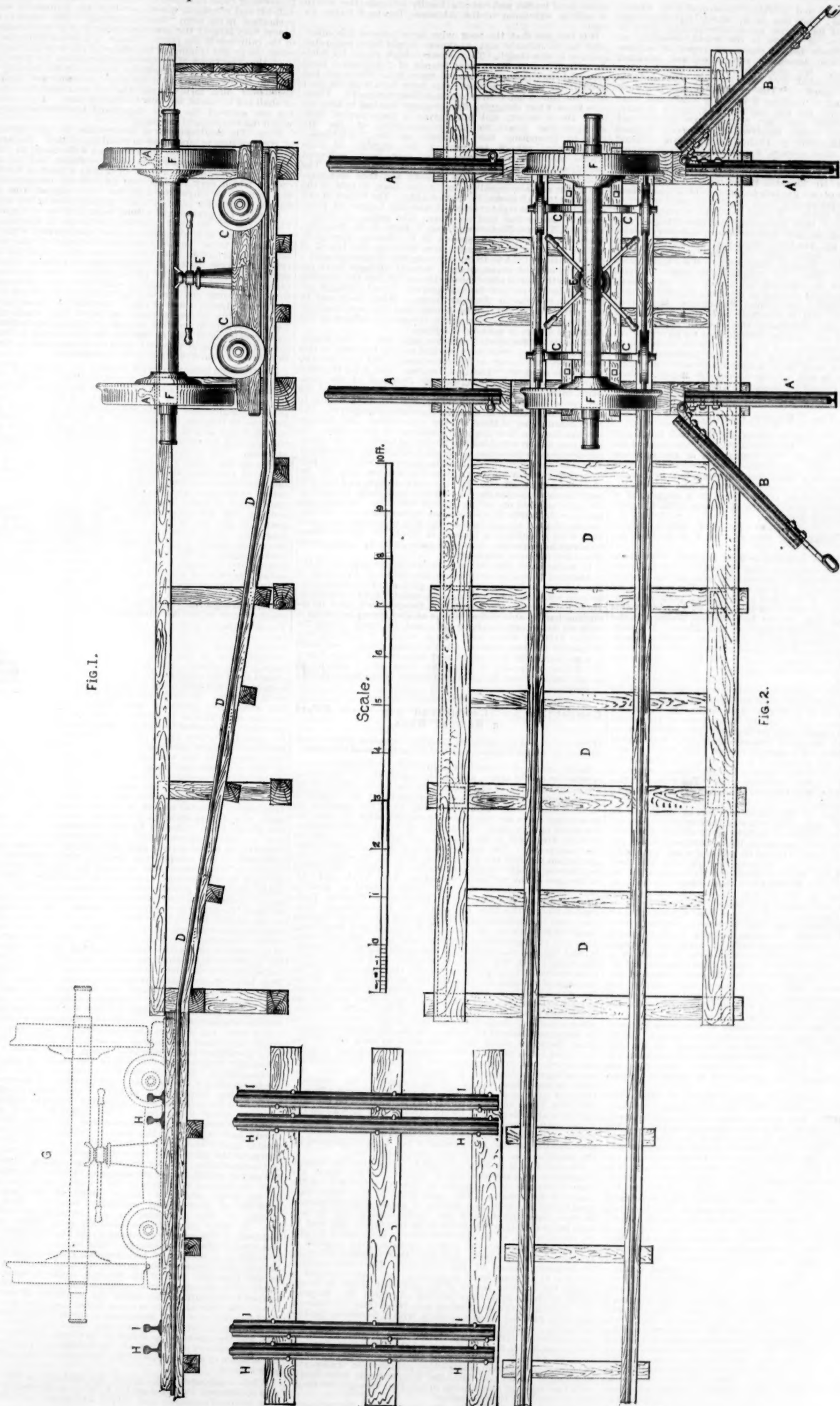
gine, ran for fifteen months, "making 255 miles a day for 461 consecutive days, including Sundays." This is 117,555 miles, without tires being turned, or brasses replaced, or a slide valve faced up, we presume. It may be at once conceded that no English engine can be produced which will run without some repairs for 117,555 miles; indeed, we may go further, and admit that American engines as a rule make a greater annual mileage than the engines on many of our great main lines, although not on all, and ask what then? We do Mr. Brereton the justice to say that he has drawn no direct conclusion unfavorable to English engines from the circumstance that they do not run so many miles in the year as American engines. It is evident that he believes American engines are better than English engines, because they get over more ground every year, but he does not say why they are better. We searched carefully for a comparative statement of the cost of working the two engines, English and American, in fuel and repairs, but on these points he is totally silent. If Mr. Brereton had mastered his subject he would have known that the consumption of fuel by American engines is per ton per mile hauled from 50 to 100 per cent. in excess of that required by English engines for the same work; and for this statement we are indebted to the Master Mechanics' Institute, a society, in effect, of locomotive superintendents. A committee appointed by this society to inquire into the cause of the want of economy in American engines, actually advocated the purchase of an English engine, that experiments might be made with it in order to ascertain how and why it was that such lines as the Settle & Carlisle, and the Waverley route from Edinburgh, could be worked with an expenditure of fuel so small that nothing to parallel it could be found from one end of the 78,000 miles of railway open in the United States to the other. The only argument which is supported by such statements as those put forward by Mr. Brereton is one to the effect that the greater the mileage got out of an engine, the higher will be its pecuniary return for the capital expended in purchasing it—in other words, the larger will be its annual earnings. But the sum to be saved in this way is as nothing to that to be gained by

colonial railway extravagance admit of being very briefly stated. In the first place, locomotives must be built on the American plan; secondly, chilled cast-iron wheels must be used; thirdly, the Corcoran wind machine must be employed for pumping. Mr. Brereton lays some stress on this, and indeed it appears to be a wonderful contrivance. "I think," says Mr. Brereton, "it is the most perfect wind motor ever invented. It is used in connection with cedar tanks, holding 50,000 to 150,000 gallons for supplying the engines." The machines are entirely automatic. We learn with wonder and admiration that "they will set themselves to the wind and turn their faces from it when it blows too hard." They can be regulated to any strength of wind, and "will work in the lightest zephyr." A wind-motor which will work in the lightest zephyr is a very close approach to perpetual motion. Mr. Brereton does not say that it will work in a dead calm; he draws the line at zephyrs, and the fact deserves attention. Fourthly, in the future construction of railways, the place of the navy and the dobbin cart must be taken by the American "Wauchope," the Slesoor excavating machine and the Chicago revolving scraper, which we may say here is nothing more than the Dutch molderbāt, and some half-century old, if not much more. Lastly, all bridges are to be Whipple trusses, and rivets are to be abolished in favor of pins. By these means, Mr. Brereton seems to think that the cost of railways may be reduced one-half. We have not space to argue with him on the percentage of saving likely to be effected by the extended use of the Corcoran wind motor; and there are engineers even in the United States who will perhaps regret that we have no room to explain the numerous defects of the Whipple truss. Our business for the present is with the relative merits of English and American locomotives as set forth in this correspondence.

Mr. Brereton's charges against the English engine are very straightforward. It costs more to begin with, and it makes a smaller annual mileage than the American locomotive. Furthermore, the English engine runs unsteadily, and wears the driver and stoker. "In regard to locomotives, the Americans certainly obtain from 8,000 to 10,000 train-miles greater duty per annum than we can get in this country or in India, and this too under the following drawbacks: inferior road beds, steeper gradients, sharper curves, more severe climate, heavier loads hauled, and less speed in running." Mr. Brereton's consummate knowledge of his subject is set forth in the last clause. Evidently he holds that the higher the speed at which an engine is worked the greater will be its annual mileage. If this be true, then English locomotive superintendents have a great deal to learn. He then proceeds to give the mileage of locomotives on various lines, giving the average for the Great Western, Great Eastern, Midland, and London & Northwestern, 18,004 miles per engine per annum. For four American lines he makes the average 30,302, and four Indian lines 18,555 miles. These statements no doubt place American engines in a favorable light, but this average performance is as nothing compared to what some engines on the New York Central have done. One passenger engine averaged 287½ miles daily for an entire year. Another, apparently a goods en-

reducing the consumption of fuel. Let us, for example, assume that the American engine which ran 117,555 miles in fifteen months, burned 40 lbs. per mile in doing a certain class of work, or, in round numbers, 2,100 tons of coal; we shall not err in favor of economy of fuel if we assume that this coal costs 10s. a ton. Then the expense for fuel alone was £1,050. In India, coal costs, according to the district, various prices. If we assumed £1 per ton, we should still be below the mark. An English engine doing the same work would burn 30 lbs. per mile, and would make 117,555 miles for £788 worth of coal, or with a clear saving of £262 in the United States, or with a saving of at least twice as much in our colonies. There is little reason to doubt that much of the economy of English locomotives is due to the admirable repair in which they are maintained; leaky valves are not tolerated; blowing piston rings are at once replaced; the engines are kept quite true, and the old adage that "a stitch in time saves nine" is constantly acted upon. But this is not the case in America; and in consequence a great annual mileage is got out of locomotives; but for economy of fuel and oil, and working expenses generally, there is no comparison between a good English locomotive and an American engine; and to this fact we specially beg to turn the attention of our colonial readers. We put forward no statement of this kind on our own authority. It originated in the United States with American locomotive superintendents, and it has never been controverted. If Mr. Brereton's advice were followed, and American engines were generally adopted, the cost of working railways in districts where fuel is dear would be enormously augmented. Throughout Mr. Brereton's letter there is not, as we have said, a single syllable of reference to this most important point. We believe he has entirely overlooked it. In a word, his acquaintance with the questions on which he has written at such length is quite superficial. Before leaving this part of our subject, it is right to point out that the great mileage got out of American engines is in a large degree due to the system of working them with two sets of men. Instead of putting the engine in the shed when the men in whose hands it is for the time go off duty, a second driver and stoker are ready to take the engine another trip. This plan Mr. Brereton warmly advocates. The only advantage to be gained would be, as we have pointed out, that fewer engines would be required to work a given length of railway. Whether the system would be productive of economy in the long run is open to doubt.

If Mr. Brereton had confined himself to praising the American locomotive, we should have been inclined to pass over his advocacy in silence, for there are, as we have often pointed out, many excellent points about American engines—points worth extended imitation by English engineers; but we cannot suffer statements which may have a misleading effect in our colonies to pass uncontradicted. He argues, for example, that much of the success of the American locomotive is due to the system of having but three types of engine for all kinds of work. These three classes he calls C D and E. Now, as a matter of fact the Americans have, if possible, a greater variety of engines than we have. Before us lies the catalogue of the Baldwin Locomotive Works, a handsome volume, well bound, beautifully printed



DROP AND TRANSFER TABLE FOR REMOVING CAR-WHEELS.  
 Designed by Mr. John Kirby, Master Car-Builders, Lake Shore & Michigan Southern Railway.



on excellent paper, and profusely illustrated with admirable photographs; and this book, which represents the practice of one of the largest locomotive-building firms in the United States, or almost in the world, describes no fewer than eighteen distinct classes or types of engine, and many of these classes are sub-divided and modified in various ways. We cite this to show how far Mr. Brereton is acquainted with the subject, and we now quote him once more: "The English engine is a very heavy affair, and in running it not only wears and tears itself very rapidly, but also the roadway, and it greatly, by its unsteadiness and jar, fatigues the drivers and firemen. I have ridden hundreds of miles on engines in India, in England, in France, and in the United States, and I have always found the American engine most easy and comfortable, but I never did the English or the Continental engines." We can only say that this passage proves that Mr. Brereton never traveled a single mile on the foot-plate of an English locomotive of a good class. If he had any experience of such engines he could not write as he has written above. We find it difficult to imagine that he does not know that traversing and Bissell bogies, and india-rubber cushions, and balance beams, and every device familiarly used by American engineers, are all being used now, and have been used for many years back in this country by English engineers. We had occasion not long since to criticize—not more sharply, we fancy, than it deserved—an article in an American magazine specially written to condemn English locomotives, and containing astonishing statements. Much that Mr. Brereton has said is identical with that article, and what we have said concerning the one will apply to the other. This will save us some trouble; but we have not yet done with Mr. Brereton, and we shall take an early opportunity of pointing out further errors and inconsistencies in his letter, and we shall have something to add concerning the part played in this correspondence by Messrs. Neilson and the Vulcan Foundry Company.—*The Engineer*.

#### The "Boston Pacific."

The Atchison, Topeka & Santa Fe Railroad, familiarly known in the West as "the Boston Pacific," has reached the capital of New Mexico. The completion of the road has been celebrated in that next to the oldest town in the United States by ceremonies a little less imposing, but no less significant, than those with which the Union and Central Pacific roads were united in 1869. There is a suggestion of romance and poetry, as well as a statement of fact, in the dispatch of Governor Anthony:

SANTA FE, N. M., Feb. 9, 1880.

Hon. THOMAS NICKERSON, President A. T. & S. F. R. R., Boston:

New Mexico sends greeting to New England, and Santa Fe to Boston. An enterprise long credited to you and your associates as the dream of speculators is to-day an accomplished fact. Atchison, Topeka and Santa Fe are united by an unbroken band of iron and a continuous path of commerce. The last rail has been laid, and, at 11 o'clock this morning, the last spike driven by Governor Wallace, in the presence of the territorial legislature and officers. The military and entire populace, salvos of artillery, music of bands, locomotive whistles and the cheers of thousands of spectators welcomed the joyous event. You have to-day what you have so well earned—the gratitude of this people.

(Signed) GEORGE T. ANTHONY.  
Santa Fe was a "populous pueblo" when first visited by the Spaniards under the Cordovan Espino, in 1540, and has been the capital of New Mexico since 1640. It was a city when Boston was a baby, but the baby town of 1640 now supplies the old capital with its first and only railroad communication with the great commercial world. Grateful is the greeting which the telegraph brings. But the old capital, corralled in the mountains, is only a way station on the great through line of the "Boston Pacific," whose passenger station will be a better building than "The Palace of the Pueblos," of which Mrs. General Wallace has just written an interesting account.

The completion of the Atchison, Topeka & Santa Fe road to Santa Fe suggests a review of the company's history, which can but be a source of pride to every citizen of Boston. The company, in 1870, was much like a European hotel, imposing chiefly in name. It had 62 miles of road, extending from Topeka to Emporia. Its gross receipts were \$182,580. In 1880 it has 1,152 miles of road, and its receipts for the year just closed were \$6,338,447. Its earnings per mile in 1870 were \$2,945, in 1879 \$5,502. It now extends from the Missouri to the Rio Grande, and before 1883 will probably extend to San Francisco; will have a line to Guaymas on the Gulf of California, and may be running Pullman cars into the city of Mexico. It seems, judging by its projected routes, bound to be the longest railroad, under one management, in the world. Its past, remarkable as it is for prosperity, will be eclipsed by its future. Its greatest difficulties have been surmounted. A careful preservation of the credit for economy and honesty which the company has earned, with a continuance of the energy and wisdom which have characterized the present and past managers, will make the future success of the great enterprise certain. The stock of the company has been a bonanza to hundreds here and elsewhere, but the mine is as yet only "just opened." With its small indebtedness and enormous earnings, in the near future certain to be much greater than ever, it cannot fail to be immensely profitable to its owners. But we are speaking of its future; we started out to speak of its past and present.

The company received its charter March 3, 1868. The road was to be completed to the western boundary of Kansas March 3, 1873. Six years passed before anything was done. At the close of 1871 there remained to be built 350 miles of road and only a year to build it in. Five millions of dollars must be secured, and other difficulties presented themselves. An appeal was made to Congress for an extension of time for two years longer, but no extension was secured, and the board determined to push ahead the work. The road was completed within the time named in the charter. Three hundred and sixty miles of road were built in 260 days, and well built, too. Cars ran to the Colorado line before Dec. 30, 1873. In 1873-4 the Pueblo & Arkansas Valley Railroad was built by the Atchison people, and thus the company had a road of its own from the Missouri River to the Rocky Mountains. An eastern outlet, besides that at Atchison, was obtained by lease of the Kansas City, Topeka & Western road, which has proved the far-sightedness of the company and a very profitable investment. The mileage of the road has been increased yearly by numerous branches and projections of the main line, until now it reaches a total of nearly 1,200 miles. The company has just completed a bargain with St. Louis & San Francisco Railroad Company, which will be of immense advantage to the Atchison, making it not only in name but in fact the "Boston Pacific." The two-named companies jointly will build a road along the 35th parallel from the Rio Grande to the Pacific coast, under the charter and name of the Atlantic & Pacific Railroad. The road when done must be the favorite route of travel across the continent, avoiding, as it does, the extremes of heat and cold. The vast and wealthy mineral region which it will open up can but make an im-

mense local traffic, and one can hardly estimate the worth of such an extension to the Atchison, Topeka & Santa Fe road.

It is but just that the men who have fostered this enterprise in its infancy and weakness should have honorable mention in this sketch. They deserve high praise for fidelity to their trust. Many new friends of "Atchison" have appeared since prosperity smiled upon her. There are but few left on its management who have been with the road from the time when it first became a Boston concern. These men know what struggles the company has had to keep its head above water, and have given a large part of their strength for years to the preservation of the life and to promoting the strength of the "Atchison." These men cannot be praised too highly. If honorable and honest success has ever been achieved in railroad management "Atchison" has achieved it. The name is a synonym for honor, honesty and true economy. We might add also equality, for it has been a rule of the company that all should be treated alike. The holder of one share has had his rights respected, and the holder of thousands of shares has had no more. The names of Gimery Twichell, Thomas Nickerson, Isaac T. Burr, F. H. Peabody, Joseph Nickerson, Alden Speare, B. P. Cheney, George B. Wilbur and Charles W. Pearce, who were on the board of directors from 1874 to 1878, were a tower of strength and a guaranty of good management. Several changes have occurred in the board since the election of '78, but the strength of the body has not been impaired. Great changes are hinted at, to occur in the near future. What they may be the writer knows not, but he knows that if a new management comes into possession of the company's affairs it will find those affairs in splendid condition.

To single out for special mention any one of the above-named gentlemen, who have worked so long together in this enterprise, may seem to be unnecessary, but any one who knows the inside of "Atchison" matters here in Boston must know that to Thomas Nickerson, the President of the company, more than to any other one person, the success of the enterprise is due. Probably no one will be more willing to assent to this statement than his associates themselves. We have heard many of them say the same thing. Mr. Nickerson has from the first inspired confidence in the public. He has always been noted for his fidelity to trust and his untiring devotion to the cause or the work which he undertakes. When he went into the railroad he threw his whole soul into it, and worked for his company as if it and his own life depended upon his efforts. He is a born leader, and one who has followers because they see he can lead them to success. He never secured the strong support which his company has had here in Boston by rose-colored representations; but capital has waited his call because the men of capital were sure that what he enlisted in himself it would be safe for them to invest in, under his care and management. Their confidence has not been misplaced.

It is rumored that he will resign the presidency of the "Atchison" soon, to enter upon the duties of President of the Atlantic & Pacific road. If he goes out of Atchison now, he goes out with honor enough to satisfy man's ambition. He found the company struggling for existence, and its securities hardly able to find buyers at any price; he leaves it with all its securities above par, and its stock selling for almost \$150 per share, with a large surplus of earnings over dividends in the treasury. As the Union Pacific road itself is a monument to the energy and tenacity of Oakes Ames, the Atchison, Topeka & Santa Fe Railroad is a monument to the industry and integrity of Thomas Nickerson.—*Boston Advertiser*.

#### Competition and Combination and their Effect on Railroad Rates

[From the second Report on the Internal Commerce of the United States, by Joseph Nimmo, Jr., Chief of the Bureau of Statistics.]

As the result of the various competitive influences of transportation and of trade, and of the possibility of increasing the actual number of competitors for the traffic furnished by the important trade centres of the country by the establishment of direct traffic over connecting lines, the question as to whether rates are reasonable or unreasonable is now determined mainly upon the ground of what transportation services are worth to the shipper, and not by their cost to the transporter. The manner in which the charges for transportation services are determined, in so far as relates to interstate or highly-competitive traffic, is clearly illustrated in the case of the rail lines connecting New York and Chicago—these lines being the New York Central & Hudson River Railroad, the New York, Lake Erie & Western Railroad (formerly the Erie Railway), the Pennsylvania Railroad, and the Baltimore & Ohio Railroad through its Eastern connections between the cities of Baltimore and New York. The cost of constructing these several lines differed widely, and the cost of maintaining and operating them also differs widely, but it is found in practice that the four lines must maintain very nearly or exactly the same rates for the carriage of freights between the two terminal cities. If the line which cost least, and which is maintained and operated at least expense, were to grant lower rates than any of the other lines it would very soon secure all the traffic. Competition would not then exist, and there would be no occasion for an apportionment of traffic. In the case under consideration, the rates which can be secured by each one of the four lines under any possible agreement are not only greatly restrained, but, in many respects, absolutely determined by competitive influences of transport and of trade entirely beyond their control. With respect to the transportation of grain and other bulky freights between Chicago and New York, the rates which may be obtained on the four railroads are determined by the rates which prevail on the water route composed of the lakes, Erie Canal, and Hudson River. The rates which can be obtained on other classes of merchandise are also in a greater or less degree influenced by the possible competition of that cheap water line.

The fact that it is impracticable to determine the reasonableness or unreasonableness of freight charges upon the basis of the cost to the carrier, is clearly recognized by the courts of the country. The same thing is true when railroad companies unite in a pooling or apportionment scheme. In such cases the share of the traffic apportioned to each road has no relation whatever to its length, to the cost of its construction, to its characteristics with respect to gradients and alignment, the cost of operating, the relation of receipts to expenditures, nor any other question affecting the financial status of the company. The only question which is at all considered in making the apportionment is simply the relative power of the different roads to secure traffic when the same rates prevail over them all. In practice, freight tariffs are framed and from time to time adjusted by railroad managers solely with reference to the two following considerations: First, the direct influence of the competition of rival transportation routes; and, second, all that is implied in the expression what each commodity will bear, by which is usually meant the rates which, under all the direct and indirect competitive influences of transportation and of trade, will yield the largest profit consistently with the object of stimulating production through the facilities afforded for transportation.

Discriminations.—Within the range of the discretionary

power over rates exercised by railroad managers lie all those difficult and vexatious questions which are summarily comprehended in the term "discriminations." This subject embraces very largely the practical question as to the relations of the railroads to the public. Since, in a broad and general sense, the proper conduct of the affairs of life depends largely upon the observance of proper discriminations, the practical question which presents itself for solution in the framing of freight tariffs, as well as in devising governmental regulations over such tariffs, is not whether discriminations shall or shall not be made, but how to discriminate. The following are some of the more important considerations upon which discriminations are based:

First.—The establishment of lower rates for the carriage of commodities in large than in small quantities. The economies of transportation indicate that differences in rates based upon this consideration are justifiable, and yet experience proves the importance of setting a limit to the discretion which may be exercised by railroad companies in this regard. A single car-load has been suggested as the unit of charges for the carriage of commodities of one kind.

Second.—The granting of special rates to favored shippers. This is one of the most objectionable forms of discrimination, inasmuch as it constitutes a direct interference with the freedom of trade, and is a flagrant violation of the well-established principle that the common carrier shall not discriminate in the matter of freight charges between persons shipping goods under like circumstances. Intelligent and fair-minded railroad managers condemn such discriminations, regarding the practice as merely an expedient to be resorted to during a war of rates. Certain exceptions to the entire abolition of special rates are urged with much more force. Perhaps in no other branch of railroad operations is there greater need than in this for the exercise of the functions of a technical tribunal, such as is supplied in Great Britain by a Board of Railway Commissioners.

Third.—Discrimination with respect to through or competitive traffic and local or non-competitive traffic. The differences which prevail in all parts of the country between the rates charged for the transportation of through or competitive freights and for the transportation of local or non-competitive freights, in proportion to the distance carried, constitute the largest, the most complex, and the most difficult question connected with the subject of discriminations in rates. The principal part of the inter-state railroad traffic of the country is highly competitive, mainly as the result of combinations entered into between railroads to facilitate direct shipment over connecting lines. "Through rates" on railroads are also influenced and regulated by the competition of water lines and of rival markets, both in this country and foreign countries. The economies of transportation are also largely in favor of "the low rate for the long haul," in all cases where the quantities to be moved are large and supply a considerable part of the business of the road engaging in the traffic. To a great extent these commercial and economic conditions have had the effect of eliminating the value of distance as an element of the cost of transportation, the tendency being constantly toward a parity of freight charges as well as of prices. But the great reductions in through rates resulting from railroad wars were the cause of most unjust discriminations as against local rates. The same causes produced very marked discriminations in favor of certain cities as against their competitors in commerce, causing widespread dissatisfaction and complaint in various parts of the country. These evils have, however, been greatly abated, and in many instances have entirely ceased since the railroads have turned from an attitude of hostility toward each other to one of amity under apportionment schemes. As the result of the low rates of transportation which have prevailed with respect to the carriage of surplus agricultural products of the West, an enormous interstate commerce as well as foreign commerce has been developed. In very many cases, producers in the Western and Northwestern states are now more favorably situated with respect to the sea-board markets and to the markets of Europe than are many of the agricultural producers in the Atlantic sea-board states. Complaints against apparent discriminations of this nature are heard in all parts of the country. The question in each case as to whether the discrimination is just or unjust, is, of course, subordinate to the more complex question as to how far such discriminations are dictated and enforced by the economies of transportation, by the regulative influence of cheap water lines, by the competition between rival railroads, and by the restraining influence of the competition between rival markets. The answer to the question also involves the inquiry as to how far such discriminations are caused by a reckless or unjustifiable exercise of power over local rates by railroad managers, in their efforts to recoup losses incurred in the conduct of their 'through,' or competitive traffic. The question as to the relative rates which shall prevail to and from different localities with respect to the different classes of freight is one of national importance, affecting vitally the interests of agriculture, of manufactures, of mining, and of commerce. Its practical determination under our present system of transportation devolves entirely upon railroad managers. This large discretionary power has come to them by the force of circumstances, and not of their own seeking. Not only are railroad managers obliged to determine the degree of consideration which shall be given to the various commercial and economic circumstances which surround them, but they are also compelled to pass upon such vitally important questions as the economic and commercial laws governing production and trade, subjects which are commonly supposed to fall within the range of practical statesmanship. To assert that this enormous power should not be remitted entirely to an interest (that of transportation) giving employment to only 2 per cent. of all the laborers in the country, and controlling interests representing only about 8 per cent. of the property value of the country, amounts to an assertion that the other interests should have a voice in this matter through some governmental agency competent to deal with it, and authorized to represent the interests of the whole country in the subject of transportation. Under existing circumstances relative to the mixed jurisdiction of the state and national governments over the internal commerce of the country, the question as to the scope and the proper limits of the practical exercise of government authority touching discriminations of this character is an exceedingly difficult one. A large part of the so-called local traffic of the railroads of this country is subject to the absolute and exclusive control of state legislation. This has been clearly announced in a decision of the Supreme Court of the United States. But a considerable part of the local traffic, as well as the principal part of the through traffic, of many railroads is, in its nature, interstate commerce, and therefore subject to regulations only under the provisions of national laws. The federal courts have not failed to observe the practical impotency of state legislation to correct those abuses in freight charges which most seriously affect the public interests, and the question has arisen as to whether a power in a state government so limited can be beneficially exercised in the absence of any exercise of the authority of the national government.

While complaints as to unjust discriminations with respect to different localities are heard from producers and shippers, railroad managers and others who speak in behalf of



the railroad interest freely concede that such discriminations constitute a great public evil. They assert, however, that the causes of the difficulty are beyond their control. At the present time, railroad managers appear to be quite generally of the opinion that the only practicable remedy for the evils of unjust and improper discriminations is to be found in a confederation of the railroads under governmental sanction and control, the principle of the apportionment of competitive traffic being recognized as a feature of such a confederation. This is a subject worthy of careful investigation. It must be confessed that a satisfactory solution of the railroad problem is yet involved in obscurity.

**The Governmental Regulation of Railroads.**—No important measures have been adopted during the last two years by any of the state governments or by the national government in regard to the regulation of railroads. The subject has, however, commanded a more general and intelligent interest than at any previous period. Experience has proved that certain of the restrictive measures adopted a few years ago by the legislatures of some of the Western states were, in their practical workings, detrimental to the producing and commercial interests of the country, and at the same time injurious to the railroad interests. Nevertheless, the legislative acts regulating freight charges which have been adopted in this country have generally had a salutary influence as reformatory measures. The benefits of such acts have resulted rather from their moral influence in restraining and preventing abuses than from their direct effect in enforcing the right and correcting the wrong. The railroad companies have been constrained to explain the principles upon which their freight tariffs are based, and thus the public have been enabled to gain much valuable information as to the distinction which exists between just and unjust discriminations, and between practices which are based upon economic considerations and sound commercial principles and such as are indefensible and therefore constitute abuses of the rights and privileges conferred upon the companies.

As all intelligent action touching the regulation of railroads must be based upon accurate, reliable, and duly authenticated information, it is essential that publicity should be given to the operations of railroad companies in so far as they relate to or affect the public interests. For the purposes of comparison, it is important that in the accounts of railroads from which such information is collected a certain degree of uniformity should be observed as to the manner in which they are kept, and also as to the manner in which the necessary returns are made. This fact has been fully realized by railroad commissioners in the preparation of their annual reports. On the 12th of November, 1878, a convention of railroad commissioners of several of the states was held at Columbus, Ohio, mainly for the purpose of conference upon this subject. A Committee on Bookkeeping and Accounts was appointed, and certain railroad accountants were requested to act with the committee as experts. At a subsequent convention of the commissioners held at Saratoga Springs, N. Y., June 10, 1879, that committee presented a report embracing certain general rules and a form of returns. The report of the committee was unanimously adopted by the convention, and the railroad accountants were invited to join in a recommendation of the new form of accounts to the railroad companies of the several states. It is believed that the reform thus suggested and urged upon railroad companies by the state railroad commissioners would, if generally carried into effect, tend to protect the interests of railroad companies by affording to the public a better understanding of the condition of the roads, and thus prevent dissatisfaction. So long as the policy of concealment is pursued, an ever-jalous public will be apt to be influenced by its prejudices and suspicions in the formation of opinions as to the operations of railroad companies.

#### Lapsed Land Grants.

In Washington, Feb. 19, the Secretary of the Interior transmitted to the Senate the report of the Acting Commissioner of the Land Office, containing information, called for, by a recent resolution, concerning land grants to railroad companies that have not performed the conditions imposed in their grants. The Commissioner states that since the submission of his last annual report for 1878, in which 19 roads were reported whose grants had lapsed, evidence has been filed of the completion of three roads, leaving only 16 grants incomplete. The report says: "The Gulf & Ship Island, Coosa & Tennessee, Mobile & Girard, Coosa & Chattanooga, Pensacola & Georgia, Florida, Atlantic & Gulf Central, North Louisiana & Texas, and the New Orleans, Baton Rouge & Vicksburg railroad companies have manifested no interest in the matter, and so far as the Commissioner is informed, neither intend nor are prepared to prosecute work upon their respective roads. In fact, it is understood that a few of the corporations named do not now exist. Referring to the grants to the Northern Pacific, Atlantic & Pacific and the Southern Pacific (main line) railroads, the Commissioner says: "These grants are anomalous in character, and though lapsed, so far as the failure of the companies to perform the acts required and imposed by the respective charters is concerned, are not considered as subject to forfeiture." The following is a table compiled from a statement accompanying the report, showing the quantity of land granted to each of the 16 roads mentioned, and the date of the expiration of their grants:

NAMES OF ROADS.	States in which Located.	Date of expiration of Grant.	Estimated Quantity Land Granted. Acres.
Gulf & Ship Island.	Mississippi.	Aug. 11, '66	652,800
Coosa & Tennessee.	Alabama.	June 3, '66	134,480
Mobile & Girard.	Alabama.	June 3, '66	840,880
Coosa & Chattanooga.	Alabama.	June 3, '66	150,000
Pensacola & Georgia.	Florida.	May 17, '66	1,508,729
Florida, Atlantic & Gulf Central.	Florida.	May 17, '66	183,153
North Louisiana & Texas.	Louisiana.	June 3, '66	610,880
New Orleans, Baton Rouge & Vicksburg.	Louisiana.	Mar. 3, '76	1,600,000
St. Louis & Iron Mountain.	Missouri.	July 1, '71	100,000
Houghton & Ontonagon.	Michigan.	Dec. 31, '72	532,515
North Wisconsin.	Wisconsin.	May 5, '69	1,408,455
Wisconsin Central.	Wisconsin.	Dec. 31, '78	1,800,000
Oregon Central.	Oregon.	May 4, '78	1,200,000
Northern Pacific.	Various.	July 4, '78	43,000,000
Atlantic & Pacific.	Various.	July 4, '78	40,000,000
Southern Pacific.	California.	July 4, '78	5,500,000
Total acres.			90,301,892

The Commissioner, after referring to the anomalous character of the grants to the Northern Pacific, the Southern Pacific, and the Atlantic & Pacific roads, says: "In other grants provision was made that, in case the roads were not completed within certain specified times, the lands unsold or unpatented should revert to the United States, and the effect of such a reservation was considered and elaborately discussed by the Supreme Court in *Schulenberg v. Harriman* (21 Wallace, page 44), where it was held that the provision was no more than a provision that the grant should be void if the condition subsequent be not performed. But no such provision is incorporated in the acts granting lands to the Northern Pacific and Atlantic & Pacific (main line) railroads. In these grants the only power or right reserved to the government will be found in the eighth and ninth sections thereof. The first of these sections imposes certain conditions required to be performed, and the second declares that in case the companies make any breach thereof and allow the same to continue for upward of one year, then, in such case, at any time thereafter, the United States may do any and all acts and things which may be needful and necessary to insure a speedy completion of the roads. The time for the completion of the Atlantic & Pacific road expired, under its charter, July 4, 1878. It had then completed 125 miles, 33 of which are situated within the Indian Territory. Nothing further, so far as this office is advised, has been done toward completing the road. The time for the completion of the Southern Pacific Railroad expired also on said 4th of July, 1878. It had then constructed 232 miles, lying between San Jose and Tres Pinos, in San Benito County, and between Huron, in Tulare County, and Mohave in Kern County, leaving an intervening section of about 90 miles to be constructed in order to make a continuous line from San Jose to Mohave. It has also failed to construct its road from this last-named point to the eastern boundary of the state, an estimated distance of about 200 miles. The question as to when the time for the completion of the Northern Pacific Railroad expired was fully considered and passed upon by the department in the decision of June 11, 1879. It was held that under sec. 8 of the act of July 2, 1864, as modified and amended by joint resolution of May 7, 1866 (14 stats., 355), and joint resolution of July 1, 1868 (15 stats., 255), the time for the completion of the road did not expire until July 4, 1879, and that under section 9 of the original act, no proceedings can be taken until one year thereafter, namely, July 4, 1880. This appears to be the only proper construction to be placed upon the grant, and if that be so, then the time when Congress can take action has not arrived. But, as stated above, the grant comes clearly within the purview of the first inquiry of the resolution, for the time within which the road was required to have been completed has already passed. The company was met soon after beginning operations by the financial depression of 1873, by which it was so crippled as to interfere for several years with the progress of its work. It is, however, reestablished, and is prosecuting the work begun in 1871, and there is reason to believe that the road will be completed as soon as practicable."

**Southern Railway and Steamship Association.**  
Pursuant to adjournment Dec. 18, the convention of this association assembled at the Kimball House, Atlanta, Ga., Jan. 29, Hon. Joseph E. Brown presiding, and Charles A. Sindall, secretary. Representatives were present from nearly all the companies belonging to the Association, and in many cases a company was represented by several officers. Representatives were present also from the Louisville & Nashville, and the East Tennessee, Virginia & Georgia railroads, which, though acting with the Association, are not members of it. The "Committee on Eliminations" presented a report through Col. E. W. Cole, its Chairman, which, after some discussion, was recommitted with a request to hear all parties, and then present an amended report. It was also instructed to ascertain and report whether any line not entitled to vote by the constitution was exercising that privilege, and to state what companies were entitled to vote. Messrs. Quintard and Stanford were added to the committee as representatives of steamship lines. This committee presented its report at 8 p. m. the same day, when it was resolved to have it printed and distributed the next day. On the morning of the 29th the following communication was received from Henry M. Drane, President of the Southern Passenger and Ticket Agents' Association, addressed to Governor Brown, President of the Southern Railway and Steamship Association: "DEAR SIR: I beg leave respectfully to submit to the Southern Railway and Steamship Association, through you, its President, the following proceedings and request of the Southern Association of General Passenger and Ticket Agents, passed at a meeting of that body in Nashville, Jan. 7, 1880. It would probably, however, be proper for me in doing so to add a few words of explanation. "The Southern Association of General Passenger and Ticket Agents is composed of the officers in charge of those departments on the railroads embraced in all the territory south of the Ohio and Potomac rivers, east of the Mississippi, north of the Gulf, and west of the Atlantic. It will thus be seen that very many of the railroad companies who are members of the Southern Association of General Passenger and Ticket Agents are also members of the Southern Railway and Steamship Association and Green Line. "The objects and purposes of the Southern Association of General Passenger and Ticket Agents, are, among other things, the making of passenger rates, the making of rules and regulations to prevent the cutting of rates, the devising and issuing of the various styles of through tickets, the traveling public use, fixing conditions touching the same, and, in short, the oversight and special management of the passenger traffic on our roads. "In our dealings and intercourse, we have sometimes found rules violated, in some cases rates cut, and in other instances more or less irregularities. We desire to correct these, but heretofore have felt the want of some strong impartial arbitration or tribunal, whose decisions would be acquiesced in and obeyed, both from the weighty character of the commission, so to speak, to which appeals could be carried, and by whom decisions could be made, but which Board of Arbitration, from its appointment and powers, could enable us to enforce any rulings. The Southern Railway and Steamship Association, having formed such a Board of Arbitration for the conduct of its own business, the Southern Association of General Passenger and Ticket Agents respectfully request that you authorize and request your said board also to take cognizance for final arbitration and adjustment of such matters and questions as we may find it necessary to bring to their attention from time to time. "The subjoined proceedings set out the subject matter somewhat more fully, and are a part of this communication. "The proceedings submitted were the report of the 'Committee on Punitive Measures' adopted at the passenger agents' meeting, Jan. 7, and given in full in a report published in the *Railroad Gazette* Feb. 6 last, page 72. "The communication was laid on the table for the time in order to take up the special order of business for the morning, which was the REPORT OF THE COMMITTEE ON ELIMINATIONS. "The Committee on Eliminations beg leave to report the following list as membership of the Southern Railway and Steamship Association entitled to vote in conventions, under the agreement and rules of the Association:

**Railroads.**—Central Railroad & Banking Company, Savannah, Griffin & North Alabama Railroad, Savannah, Florida, & Western Railroad Company, Macon & Brunswick Railroad, Brunswick & Albany Railroad, Georgia Railroad & Banking Company, South Carolina Railroad, Savannah & Charleston Railroad, Port Royal & Augusta Railroad Company, Charlotte, Columbia & Augusta Railroad Company, Wilmington, Columbia & Augusta Railroad, Wilmington & Weldon Railroad Company, Seaboard & Roanoke Railroad Company, Atlanta & Charlotte Air-Line Railway Company, Northeastern Railroad of Georgia, Richmond & Danville Railroad Company and Leased Lines, Carolina Central Railway, Raleigh & Gaston Railroad Company, Raleigh & Augusta Air-Line Railway Company, Western & Atlantic Railroad Company, Nashville, Chattanooga & St. Louis Railway Company, Atlanta & West Point Railroad Company, Western Railroad of Alabama, Mobile & Girard Railroad Company, Montgomery & Eufaula Railroad, Rome Railroad, Richmond, York River & Chesapeake Railroad Company.

**Steamships.**—Boston & Savannah Steamship Company, Ocean Steam Company of Savannah, Philadelphia & Southern Mail Steamship Company, Merchants' & Miners' Transportation Company's Virginia & Eastern Lines, Merchants' & Miners' Transportation Company's Baltimore & Savannah Line, Mallory Lines to Port Royal and Brunswick, New York & Charleston Steamship Company, New York & South Carolina Steamship Company, Old Dominion Steamship Company's New York, Norfolk & Richmond Line, Old Dominion Steamship Company's New York & West Point Line, Baltimore Steam Packet Company, including Canton Inside Line, Clyde Lines out of New York to ports north of Charleston, Clyde Lines out of Philadelphia, Merchants' Steamship Company, Baltimore, Chesapeake & Richmond Steamship Line, including Powhatan Line.

Also that the following railroads be entitled to vote on all questions in which they are interested: Louisville & Nashville Railroad Company, South & North Alabama Railroad Line, including Nashville & Decatur Railroad, Atlantic, Mississippi & Ohio Railroad, East Tennessee, Virginia & Georgia Railroad Company, Selma, Rome & Dalton Railroad.

As to the Atlantic & North Carolina Railroad, as it has not yet begun to do competitive business, the committee recommend that as soon as they substantially engage in competitive business of the Association and make reports of the same to the General Commissioner, that it be admitted, on his report of the same, to voting powers.

E. W. COLE, Chairman.

The report, having been read, was discussed at length. Mr. Wadley stated that the Companies he represented would not be willing to remain in the Association if the report was adopted as presented giving more than one vote to a steamship company because of its running several lines, while it allowed only one vote to a railroad company, regardless of the points it ran lines to, and excluded from voting all leased roads.

Gen. Groner explained the position of the Merchants' and Miners' Transportation Company's lines, that the Baltimore & Savannah Line and the line formerly known as the Baltimore & Savannah Steamship Company, which had been a member since the formation of the Association and before the Merchants' & Miners' Transportation Company joined; that the Merchants' & Miners' Transportation Company had four years since bought the property of the Baltimore & Savannah Steamship Company, and now run the line, but that the accounts, etc., of that line were kept separate from those of the company's other lines.

Gen. Alexander stated that the Committee had submitted the report giving the Merchants' & Miners' Transportation Company two votes, mainly because of facts stated by Gen. Groner.

Mr. Wadley moved to amend the report by reducing the Merchants' & Miners' Transportation Company, the Old Dominion Steamship Company, and the Clyde Lines, to one vote each.

Judge Haskell offered as a substitute for the amendment offered by Mr. Wadley, that the term "Clyde Lines out of New York to ports north of Charleston" be changed to "the New York & Wilmington Steamship Company," and that it be entitled to one vote; and that the term "Clyde Lines out of Philadelphia" be changed to "the Philadelphia, Norfolk & Richmond Steamship Company, the Philadelphia & Charleston Steamship Company," and that each of these companies be recognized as a member of the Association and be entitled to one vote.

On motion of Gen. Groner, seconded by Mr. Pope, the report, together with the amendments and substitute offered, were laid on the table.

The Cincinnati Southern Railway was elected a member of the Association.

The article of the Association with reference to the annual assessment of members, notice of which was given at the convention of Dec. 16-18, was called up and adopted.

This article declares that each voting member of the Association shall pay an annual assessment of \$250 during the first month of each association year to the General Commissioner, to be appropriated in defraying the ordinary expenses of the Association.

General Alexander gave notice that at the next convention he would offer for adoption as an addition to the articles of agreement, a provision that in addition to the votes given to each company by the report of the committee, each should cast one vote for every \$20,000 of business reported to the General Commissioner during the preceding Association year.

By a vote of 35 to 25 that part of the report of the conference committee adopted at the previous convention which changed the divisions of cotton from a revenue basis to a tonnage basis, was suspended for the current crop-year, or until Sept. 1 next.

A communication was presented giving resolutions passed at a meeting of the Merchants' and Miners' Transportation Co., the Merchants' Steamship Co., the Baltimore, Chesapeake & Richmond Steamboat Co., and the Baltimore Steam Packet Co., declaring that the alteration made Dec. 16 last in the differences in rates from Western points to Southern territory from those established Nov. 26 and 28, 1878, by agreement between the Association and the Green Line, was virtually an abrogation of that agreement and rendered its object futile and invalid and protesting against any alteration of the original agreement, and declaring the determination of these companies not to accede to any arrangement which will reduce the differences in rates from the West to Southern territory on the lettered classes to less than 10 cents per 100 lbs.

The convention proceeded to an election of officers for 1880, and the old officers were reelected, as follows: Joseph E. Brown, President; Virgil Powers, General Commissioner; Charles A. Sindall, Secretary.

Messrs. Alexander, Raoul and Grover were appointed a committee to confer with the Board of Arbitration.

The resolution passed at the previous convention removing the office of the General Commissioner from Macon to Atlanta was suspended for the present Association year.

The following, offered by Mr. Pope, was adopted unanimously:

"Resolved, That this Association has received the com-



munication of the President of the Southern Passenger and Ticket Agents' Association, touching a reference of disputed passenger matters to the Board of Arbitration of the Southern Railroad & Steamship Association, and begs to say that its agreement and rules forbid cognizance of passenger questions, but it will be pleased to have said Board of Arbitration, at its own discretion, act on any questions that the Southern Association of General Passenger and Ticket Agents may submit to it.

The General Commissioner was directed to check at once on each member as per list of votes cast at this Convention. Carried.

#### BOARD OF ARBITRATION.

The following, offered by Mr. Wilmot, was adopted:

"1. That the Board of Arbitration shall keep a docket, upon which all appeals shall be entered in the order in which they are taken.

"2. That before every session of said Board it shall give notice in writing to every member of the Association, naming a case on the docket which the Board proposes to hear at that session.

"3. If, when a case is called, either side is not ready for a hearing, the Board may, for good cause, continue the case until the next session. But there shall not be more than one continuance in any case, unless by the consent of all parties.

"4. In case all the parties are not present, the Board may hear those who are present either in person or by counsel, and shall adopt such rules of procedure as may, in their judgment, be necessary.

"5. The Board may hold its sessions at such places as will best suit the convenience of the parties desiring to appear before it."

The committee appointed to confer with the Board of Arbitration reported the following resolutions, and recommended their adoption:

"Resolved, That the Board of Arbitration be allowed to employ a clerk at a salary not exceeding \$900 per annum, and his traveling expenses.

"Resolved, That all other necessary expenses of the Board of Arbitration, such as telegraphing, printing, stationery, etc., shall be defrayed by the General Commissioner, and that the members of the Association are requested to furnish passes to the members of the Board and to their clerk.

"Resolved, That the understanding of the convention is that the term of service of the present Board of Arbitration is to run from Jan. 1, 1880, to Dec. 31, 1880, and until their successors are appointed."

Notice was given by Mr. Wadley that he would submit the matter of bearing a proportion of the expenses of the Board of Arbitration to the boards of directors of the companies he represented, and in the mean time could not consent to pay such expenses.

The resolutions reported by the committee were adopted. Judge Haskell moved that the Agreement and Rules be renewed for the year 1880, the vote here cast to be binding on all members, unless immediate notice to the contrary be given the Secretary by those objecting.

Before the vote was put, Mr. Wadley gave notice that he could not vote to continue as members the companies he represented, but would submit the matter to the boards of directors.

The same position was announced by Gen. V. D. Groner, for Merchants & Miners' Transportation Company; Col. John B. Peck, for South Carolina Railroad; Mr. E. F. Wilson, for Cincinnati Southern Railway; M. Geo. W. Quintard, for New York & Charleston Steamship Company; Mr. T. G. Eger, for New York & South Carolina Railroad; and Gen. W. L. James, for Philadelphia & Southern Mail Steamship Company.

The question of the continuation of the Association for the year 1880, being put to vote, motion to continue was adopted.

On motion of Col. John B. Peck, the action taken by the convention of Aug. 13 to 15, 1879, by which certain principles governing divisions of business were adopted, was repealed.

The convention then adjourned *sine die*.

#### Train Accidents in January.

The following accidents are included in our record for the month of January:

##### REAR COLLISIONS.

On the night of the 5th a freight train on the New York, Lake Erie & Western road broke in two near Sloatsburg, N. Y., and the two sections afterward came together, breaking up several coal cars and injuring a brakeman badly.

On the night of the 5th, in a heavy fog, a stock train on the Chicago, Burlington & Quincy road ran into a preceding stock train near Gale Hollow, Ill., wrecking a number of cars and killing two drovers in the caboose.

On the night of the 7th a passenger train on the Baltimore & Ohio road ran into the rear of a freight near Martinsburg, W. Va., damaging several cars.

On the 9th a freight train on the Pittsburgh, Ft. Wayne & Chicago road ran into the rear of another freight at Englewood, Ill., damaging several cars.

On the morning of the 10th a wild engine on the Rensselaer & Saratoga road ran into the rear of a freight train which had stopped at Fairhaven, Vt., damaging several cars.

On the night of the 11th a passenger train on the Missouri Pacific road backed into another one which was standing on a Y in Atchison, Mo. One car was damaged.

On the 12th a freight train on the Indianapolis, Peru & Chicago road broke in two near Denver, Ind., and the rear section ran into the forward one, breaking up 10 cars, injuring fatally a tramp who was stealing a ride, and hurting two brakemen slightly.

Early on the morning of the 13th a coal train on the New York, Lake Erie & Western road ran into some cars which had broken loose from an oil train near Southfield, N. Y. The engine and two cars were badly damaged, the oil from a broken car caught fire and five cars were burned up, the wood-work of the locomotive being also destroyed. The road was blocked several hours.

On the morning of the 13th there was a collision between a Jeffersonville, Madison & Indianapolis passenger and a freight train near the end of the Ohio River bridge in Louisville, Ky. There was a thick fog at the time.

On the morning of the 14th a freight train on the Western & Atlantic road ran into some cars which had broken loose from a preceding freight near Dalton, Ga. The engine and two cars were badly broken, and two train-men slightly hurt.

On the night of the 14th a freight train on the Nashville & Decatur road ran into a preceding freight at Elkmont, Tenn., wrecking the caboose and injuring one man slightly.

On the night of the 14th a freight train on the Troy & Boston road ran into the rear of a preceding freight which had stopped at Blackinton, Mass. The engine and several cars were wrecked and the caboose burned up.

Early on the morning of the 15th, in a dense fog, a freight train on the Ohio & Mississippi road ran into the rear of a preceding freight, which had stalled on a grade near North Vernon, Ind. The engine and two cars were damaged and four persons in the caboose badly hurt.

On the evening of the 22d, as a passenger train on the New York, Lake Erie & Western road was being run into the depot at Paterson, N. J., by a flying switch, it was not stopped soon enough and ran into another train standing in the house, driving a car off the track. The passengers in the entering train were pretty well shaken up and two of them slightly hurt.

On the morning of the 23d a freight train drawn by two engines on the Pennsylvania Railroad ran into a train which had broken in two near Southwest Junction, Pa. Both engines were thrown over and damaged and eight cars badly wrecked. The train-men jumped, but one of the engineers was hurt. The road was blocked three hours, both tracks being obstructed. It is said that no flag was sent back from the broken train.

On the morning of the 27th a freight train on the Ohio & Mississippi road broke in two near Summit, Ill., and the rear section afterward ran into the forward one, wrecking three cars and damaging several others. The road was blocked all day.

##### BUTTING COLLISIONS.

On the evening of the 5th there was a butting collision between a freight train and a yard engine in the Baltimore & Ohio yard, at Pittsburgh, Pa. The yard engine was upset and badly damaged.

On the morning of the 6th there was a butting collision between a freight and a passenger train on the Pennsylvania Railroad, at the bridge over the Hackensack River, near Meadows, N. J. Only slight damage was done. The bridge was being repaired, so that only one track over it was in use, and it is said that the freight train disregarded the signal given for it to stop.

On the morning of the 7th a freight train on the Vermont & Massachusetts Division of the Fitchburg road broke in two near Athol, Mass., and the detached cars ran back down the grade and into the head of a following freight, wrecking the engine and several cars and injuring a man in the caboose.

On the morning of the 7th there was a butting collision between two passenger trains on the Manhattan Elevated road, at Sixtieth street, in New York, by which both engines were damaged.

On the morning of the 9th there was a butting collision between a freight and a repair train on the New York Central & Hudson River road, at Ft. Montgomery, N. Y., by which both engines were badly damaged.

On the afternoon of the 9th there was a butting collision between two coal trains on the Baltimore & Ohio road at Scott Haven, Pa. One engine and several cars were wrecked, the other thrown over down a bank upon a small house, crushing it and injuring a woman who was in it. The conductor of one of the trains is said to have misunderstood his orders.

On the afternoon of the 9th the limited express train on the Baltimore & Potomac road ran into the head of a local passenger train at the end of the double track near LaFayette station in Baltimore. The local train should have stopped on the double track, but for some reason ran beyond and out on the single track, meeting the express before it could be stopped. Both engines and a postal car were damaged.

On the 22d there was a butting collision between two freight trains on the Philadelphia & Erie road, near Cameron, Pa. Both engines and 20 cars were wrecked; an engineer, a fireman and a brakeman killed and three others hurt. It is said that an order had been sent to hold one of the trains at Cameron, but the operator failed to deliver it.

On the morning of the 28th, in Atchison, Mo., there was a butting collision between a Chicago, Rock Island & Pacific passenger and a Hannibal & St. Joseph freight, by which both engines and a box car were badly broken.

On the evening of the 30th a passenger train on the New York, Lake Erie & Western road ran into the head of a switching train which was running across the track in the yard in Jersey City, N. J. The passenger engine and several cars were damaged. It is said that no light was sent out by the switching train.

##### CROSSING COLLISION.

On the morning of the 12th, as two freight engines were both running across to the main track from different directions in the New York, Lake Erie & Western yard at Hornellsville, N. Y., they met at a switch crossing and both were considerably damaged.

##### DERAILMENT, BROKEN RAIL.

On the night of the 16th a freight train on the Central Railroad of Georgia, struck a broken rail near Milner, Ga., and 12 cars were thrown from the track, four of them being piled up in a bad wreck. The road was blocked 10 hours.

##### DERAILMENT, BROKEN WHEEL.

On the morning of the 11th some cars of a freight train on the Intercolonial road were thrown from the track near Metapedia, P. Q., by a broken wheel.

On the morning of the 13th 27 cars of a coal train on the Pittsburgh & Castle Shannon road were thrown from the track at Saw Mill Run, Pa., by a broken wheel, and a number of them went off the trestle there and fell to the ground. The cars were wrecked and the trestle broken.

##### DERAILMENT, BROKEN AXLE.

On the 14th a passenger train was thrown from the track near Newcastle, Ind., on the Ft. Wayne, Muncie & Cincinnati road, by a broken axle, blocking the road four hours.

##### DERAILMENT, BROKEN SWITCH-ROD.

On the night of the 10th a passenger train on the Central Vermont road was thrown from the track near Bellows Falls, Vt., by a broken switch-rod. But little damage was done.

##### DERAILMENTS, SPREADING OF RAILS.

On the morning of the 4th the engine of a freight train on the Pittsburgh, Ft. Wayne & Chicago road was thrown from the track in Ft. Wayne, Ind., by the spreading of the rails.

On the morning of the 21st the engine and several cars of a freight train on the Jeffersonville, Madison & Indianapolis road were thrown from the track at Memphis, Ind., by the spreading of the rails on a siding.

Very early on the morning of the 27th a freight train on the Pittsburgh & Lake Erie road was thrown from the track by the spreading of the rails near West Economy, Pa., and a car loaded with glass-ware was wrecked.

##### DERAILMENTS, WASH-OUTS AND LAND-SLIDES.

On the morning of the 6th a freight train on the Cleveland, Columbus, Cincinnati & Indianapolis road ran into a washed-out culvert near Union City, Ind. The engine went down into the gap and nine cars were piled up on top of it in a very bad wreck, blocking the road 20 hours. The fireman and a brakeman were killed and the engineer hurt.

On the evening of the 7th a passenger train on the Delaware, Lackawanna & Western road ran into a land-slide near Richfield Junction, N. Y., and the engine was thrown over and badly damaged.

##### DERAILMENT, ACCIDENTAL OBSTRUCTION.

On the morning of the 23d a material train on the Vir-

ginia Midland road struck a rock which had rolled upon the track in a side-hill cut at Cove Creek bridge, near Rockfish, Va. The engine struck the rock and threw it to one side, but it rolled back again under the second car, throwing it off, and, with the seven following cars, it went off the track and they all went off the bridge, falling over 60 feet. They were, of course, wrecked. The caboose remained on the track, the coupling breaking. The conductor and a laborer were killed; the Assistant Road-Master and 10 laborers hurt.

##### DERAILMENTS, MISPLACED SWITCH.

On the morning of the 11th the engine and two cars of a Central Vermont passenger train were thrown from the track in Bellows Falls, Vt., by a misplaced switch.

On the 17th a freight train on the New York, Lake Erie & Western road was thrown from the track at Hinsdale, N. Y., by a misplaced switch. The depot was wrecked by the train.

On the 20th the engine and four cars of a freight train on the Cincinnati, Sandusky & Cleveland road were thrown from the track at Green Springs, O., by a misplaced switch.

On the afternoon of the 20th 17 cars of a freight train on the Chicago, Rock Island & Pacific road were thrown from the track by a misplaced switch near Davenport, Ia., and several of them were badly wrecked, blocking the road eight hours. It is believed that the switch had been set right, but not fastened, and jarred loose when the first part of the train passed over.

Very early on the morning of the 23d a passenger train on the Metropolitan Elevated road was thrown from the track by a misplaced switch at 144th street, in New York, and the engine turned over and fell to the ground, some 25 feet below. The engine was wrecked and seven employees who were on it were hurt, two very badly.

##### DERAILMENT, OPEN DRAW.

Very early on the morning of the 6th a freight train on the Long Branch Division of the New Jersey Central road ran through an open draw and into the Rahway River, near Woodbridge, N. J. The engine and six cars went into the river, and the bridge was badly damaged. The draw had a near and a distant signal, and the bridge-tender claims that both were displayed, but the train hands say that the distant signal was not visible. The engineer and fireman were slightly hurt.

##### DERAILMENT WITH MALICIOUS INTENT.

On the night of the 9th a passenger train on the Nashville & Decatur road struck some rails which had been laid across the track near State Line, Ala. Nearly the whole train left the track, and the engine was damaged.

##### DERAILMENTS, UNEXPLAINED AND MISCELLANEOUS.

On the morning of the 1st a local passenger train on the Philadelphia & Reading road ran off the track near Mahanoy Plane, Pa., and several cars were damaged.

On the 1st the engine of a passenger train on the Lake Erie & Western road, ran off the track near Lima, O., and was badly damaged.

On the night of the 3d the engine of a Cleveland, Columbus, Cincinnati & Indianapolis train ran off the track on the Union tracks in Indianapolis, Ind., blocking the road two hours.

On the 5th a freight train on the Chicago & Alton road, ran off the track near Kansas City, Mo., and several cars were wrecked.

On the 5th a passenger train on the Peoria, Decatur & Evansville road ran off the track near Decatur, Ill., damaging several cars and injuring three passengers.

On the afternoon of the 5th a freight train on the Kansas City, Ft. Scott & Gulf road ran off the track at Shawnee, Kan., and seven cars were piled up in a bad wreck, doing much damage.

Early on the morning of the 7th some cars of a freight train on the New York, Lake Erie & Western road ran off the track at Passaic, N. J., blocking one track for two hours.

Early on the morning of the 10th three cars of a freight train on the Evansville, Henderson & Nashville Division of the Louisville & Nashville road ran off the track near Hollow Rock, Ky. The cars were in a narrow cut where it was very difficult to work at them, and the road was blocked several hours.

On the 10th one truck of a freight car on the Missouri, Iowa & Nebraska road jumped the track at Cooper Bridge, Iowa, and went down a bank. The car was held up by the coupling and ran to the next station before the accident was found out.

On the 18th two cars of a freight train on the New Castle & Franklin road ran off the track at Volant, Pa., blocking the road all day. A brakeman was slightly hurt.

On the morning of the 18th the engine and two cars of a passenger train on the North Penn & Bound Brook Division of the Philadelphia & Reading road ran off the track near North Wales, Pa. The engine and a sleeping car were badly broken, the engineer killed and the fireman hurt.

On the 23d a gravel train on the New York & New England road was backing into a gravel pit at Franklin, Mass., when the train broke in two and 11 cars ran down a grade and off the end of the siding, and were piled up in a heap in the pit. A brakeman was hurt.

On the afternoon of the 29th a freight train on the White-water Valley road ran off the track in Connersville, Ind., and four cars were wrecked.

##### BOILER EXPLOSIONS.

On the morning of the 7th the engine of a freight train on the Houston & Texas Central road exploded its boiler while standing on a siding in Dallas, Tex., waiting for another train to pass. The engine was torn in pieces, parts of the boiler being thrown 300 yards and more. The engineer and fireman were hurt and a man who was standing by the engine fatally injured. The boiler was eight years old, and is said to have been in poor condition.

On the afternoon of the 28th the engine of a passenger train on the Western North Carolina road exploded its boiler when near Statesville, N. C. The forward part of the engine was destroyed, parts of it being scattered in every direction, the force of the explosion being apparently forward and upward. The engineer and a man who was in the cab were hurt, the fireman thrown back on top of a car, but not injured. The engine was an old one.

##### OTHER ACCIDENTS.

On the morning of the 8th the connecting-rod of the engine the pay train on the Manchester & Lawrence road broke when the train was near Manchester, N. H. The loose rod damaged the engine badly, tearing up one side of it and knocking a hole in the boiler. The engineer and fireman were scalded badly.

On the morning of the 27th the engine of a passenger train on the Delaware, Lackawanna & Western road broke a connecting-rod when near Mountain View, N. J., and one side of the cab was badly broken up by the loose end.

This is a total of 62 accidents, whereby 11 persons were killed and 50 hurt. Seven accidents caused the death of one or more persons; 14 caused injury, but not death, while in 41, or 66.1 per cent. of the whole number, there were no injuries severe enough for record.

As compared with January, 1879, there was a decrease of



51 accidents, of 12 in the number killed, and of 40 in that injured.

These accidents may be classed as to their nature and causes as follows:

COLLISIONS:	
Rear collisions.....	16
Butting collisions.....	10
Crossing collision.....	1
Total.....	27
DERAILMENTS:	
Broken rail.....	1
Broken wheel.....	2
Broken axle.....	1
Broken switch-rod.....	1
Spreading of rails.....	3
Wash-out.....	1
Land-slide.....	1
Accidental obstruction.....	1
Misplaced switch.....	5
Open draw.....	1
Running off end of siding.....	1
Malicious obstruction.....	1
Unexplained.....	12
Total.....	31
Boiler explosions.....	2
Broken connecting-rod.....	2
Total.....	62

Six collisions are attributed to trains breaking in two; three to fog; two to flying switches; two to mistakes in orders, and one to a failure to use signals. Of the whole number of accidents, 18 may be traced to defects or failures of road or equipment; 3 to unavoidable results of the elements or the weather; 28 to carelessness or errors of management; one was caused maliciously, and 12 are unexplained.

The division according to classes of trains is as follows:

Accidents:	Colli- sions.	Derail- ments.	Other Accidents.	Total.
To passenger trains.....	4	11	3	18
To a passenger and a freight.....	5	—	—	5
To freight trains.....	18	20	1	39
Total.....	27	31	4	62
Casualties:				
Killed by.....	6	4	1	11
Injured by.....	16	28	6	50
Total.....	22	32	7	61

The month shows, by contrast with January of last year, the effect of the weather on train accidents in a very marked way. It was generally mild for the season, with few storms and little snow, while a year ago all the northern roads were struggling with snow blockades, and derailments from that cause, broken rails and similar accidents were numerous.

The collisions for the month were in unusually large proportion, especially butting collisions. The most frequent cause was trains breaking in two, and this is not unexpected at a time when traffic is heavy, engines are worked to their full capacity and trains made as long as can be moved. It is also probable that with the general tendency to use heavier locomotives and run longer trains there has been little or no improvement in coupling apparatus. The common draw-head with link and pin is still in almost universal use, and perhaps sufficient attention has not been paid to increased strength in even these appliances. Breaking of trains so frequently occurring ought to set master mechanics and car-builders thinking. Whether they believe in long trains or not, they must recognize the fact that managers are disposed to, and make provision accordingly.

For the year ending with January, the record is as follows:

	Number of accidents.	Killed.	Injured.
February.....	88	11	75
March.....	61	14	50
April.....	50	4	27
May.....	37	5	20
June.....	64	18	55
July.....	81	14	54
August.....	79	19	50
September.....	78	8	47
October.....	104	35	106
November.....	86	16	64
December.....	69	18	72
January.....	62	11	50
Totals.....	859	173	669

The averages per day for the month were 2.00 accidents, 0.35 killed, and 1.61 injured; for the year, there were 2.35 accidents, 0.47 killed, and 1.83 injured. The average casualties per accident were, for the month, 0.177 killed, and 0.806 injured; for the year, 0.201 killed, and 0.779 injured.

### THE SCRAP HEAP.

#### Locomotive Construction in England.

A letter from Sheffield to *Engineering*, dated Feb. 4, says: "We are given to understand that some of the local engineers are now largely engaged in the manufacture of machinery for locomotive engines. The boilers and heavier parts are being made in the North of England, but the finer parts are being manufactured in Sheffield and Leeds. There is a growing demand for engine tires, and lately some have been forged 10 ft. 8 in. in diameter. These are driving-wheels, intended to gain high speed, and before long it is expected that they will be introduced on one of the main railway systems of England."

#### Hard to Kill.

A few days ago a section boss, while working on the Hannibal & Naples Branch of the Wabash, saw a train coming, and at the same time noticed that a shovel was left some distance away on the track. He started for the shovel; just as he was stooping to pick it up, the train struck him, the nose of the pilot entering between his legs, lifted him straight up, landing him on the pilot in front of the boiler. The train was stopped as soon as possible. The engine driver went to the front to find the mangled remains of the section boss. Imagine his surprise to see that worthy man get down from the pilot, and with the remark that there was no harm done except a little skin off the leg, deliberately walked back to his gang, and resume work. The shovel was badly demolished.—*Feoria (Ill.) Transcript*.

#### Tapping Car Wheels.

The Yates City (Ill.) *Banner* says: "John Hensler, a native of Sweden, has been in the employ of the Chicago, Burlington & Quincy Railroad Company for 25 years, first at Galesburg, and afterward in Yates City, in which place he had been for 18 years. His business is to test the car wheels

### LOCOMOTIVE RETURNS, OCTOBER, 1879.

Master Mechanics of all American railroads are invited to send us their monthly returns for this table.

NAME OF ROAD.	Number of locomotives in service.	MILEAGE.	MILES RUN TO TON OF COAL.	AVERAGE NO. OF FREIGHT CARS Hauled.	AVERAGE COST PER FREIGHT CAR MILE, CENTS.	COST PER MILE IN CENTS FOR					AVERAGE COST OF	
						Repairs.	Fuel.	Stores.	Miscellaneous.	Engines, firemen and wipers.	Total.	Coal per ton.
Allegheny Valley, River Division*.	130	36	92,000	2,573	38.00	94.33	22.20	0.573	4.47	2.93	0.44	5.50
Low Grade Div.	130	18	38,188	2,132	31.33	30.21	22.50	0.063	5.08	2.38	0.57	8.06
Atlantic & Great Western, 1st and 2d Divs.	298	78	314,094	4,383	34.72	15.94	10.40	—	3.48	5.77	0.47	5.03
Third and Fourth Divs.	197	40	180,743	3,863	25.48	27.23	14.72	—	3.94	4.11	0.34	4.77
Maumee Div.	188	47	140,094	2,981	40.10	34.07	21.90	—	2.40	4.82	0.32	4.97
Camden & Atlantic.	67	13	22,840	1,757	52.00	10.00	13.30	—	4.03	7.01	0.04	10.80
Central Pacific, Western Div.	128	31	70,395	2,463	47.14	17.56	—	—	4.31	12.43	0.48	7.50
Northern & San Pablo Div.	158	25	74,573	2,983	36.80	23.70	—	—	4.03	16.16	0.40	6.90
Visalia Div.	151	19	35,498	2,517	49.93	23.15	—	—	0.96	11.70	0.39	0.11
Tulare Div.	171	8	21,777	2,722	43.07	21.16	—	—	3.08	13.39	0.44	7.41
Los Angeles, San Diego, Yuma & Wilmington Divs.	600	98	65,352	2,514	59.88	20.85	—	—	4.02	9.92	0.44	6.85
California Pacific Div.	178	16	48,106	3,015	31.30	21.09	—	—	3.14	18.81	0.40	0.40
Stockton & Copperopolis.	40	4	2,657	634	—	53.51	16.97	—	3.76	10.37	0.52	0.41
Sacramento Div.	120	37	107,968	2,910	—	24.45	20.50	—	4.02	24.53	0.42	0.37
Oregon Div.	152	8	21,748	2,719	—	31.66	24.25	—	3.15	18.65	0.37	0.18
Green Bay & Minnesota.	200	20	84,475	3,085	31.31	18.91	—	—	4.45	18.91	0.41	0.51
Humboldt Div.	309	20	63,239	3,162	31.87	20.54	—	—	5.00	16.75	0.40	0.32
Salt Lake Div.	219	28	85,906	3,071	30.68	20.40	—	—	3.21	18.94	0.46	0.21
Chicago & Eastern Illinois.	153	20	83,630	2,884	34.67	19.01	—	—	5.50	3.31	0.35	5.36
Chicago & North Western.	151	19	90,911	2,904	30.78	19.45	—	—	3.88	7.55	0.38	6.05
Cleveland, Col. & Ind.	471	—	—	—	—	—	—	—	—	—	—	—
Cleveland & Pittsburgh.	225	81	103,172	2,385	44.16	19.15	18.16	0.732	3.00	2.60	0.37	1.70
Cleveland, Tus. Valley & Wheeling.	110	17	46,173	2,751	31.98	15.58	35.09	—	3.93	1.37	0.50	0.63
Delta, Lacka. & Western, Bloomsburg Div.	80	24	71,828	2,983	—	34.20	—	—	2.12	—	0.45	4.03
Erie & Pittsburgh.	98	29	63,780	2,199	40.28	10.11	18.40	0.706	2.54	4.01	0.39	1.44
Grand Rapids & Indiana.	322	35	111,509	3,157	46.09	30.44	17.82	—	2.01	6.50	0.47	1.24
Houston & Texas Central.	217	17	35,703	2,576	62.35	29.84	20.97	—	1.60	6.00	0.51	0.04
Illinois Central, Chicago Div.	402	91	257,434	2,829	34.55	16.64	21.18	—	2.75	4.56	0.19	5.73
North Div.	345	49	118,353	2,415	35.81	17.40	14.90	—	4.30	4.36	0.18	5.78
Springfield Div.	101	13	34,776	2,319	35.42	18.25	15.70	—	1.98	3.00	0.31	4.57
Iowa Div.	103	15	120,019	2,400	30.91	18.04	13.60	—	3.67	7.73	0.19	5.81
Jeffersonville, Madison & Ind.	229	41	195,477	2,572	40.77	28.12	17.14	0.800	2.97	0.81	0.29	1.83
Kan. City, St. Jo. & Council Bluffs.	247	34	116,454	3,529	43.80	27.30	22.00	—	3.10	6.31	0.30	6.50
Kansas Pacific.	920	86	275,320	3,211	27.04	12.34	—	—	3.88	11.78	0.30	6.11
Lake Shore & Mich. So. Buffalo Div.	—	—	—	—	—	—	—	—	—	—	—	—
Erie Div.	—	—	—	—	—	—	—	—	—	—	—	—
Toledo Div.	—	—	—	—	—	—	—	—	—	—	—	—
Mich. Southern Div.	—	—	—	—	—	—	—	—	—	—	—	—
Little Rock, Miss. River & Texas.	—	—	—	—	—	—	—	—	—	—	—	—
Louisville & Nashville, First Div.	332	60	140,718	2,345	30.74	15.18	18.51	1.057	2.65	6.81	0.35	0.97
Second Div.	200	50	72,940	2,430	32.20	20.51	15.67	1.120	4.14	5.61	0.38	1.70
Memphis Div.	151	16	30,785	1,624	33.72	17.25	12.52	1.220	4.00	6.41	0.37	1.90
Nash. & Decatur Div.	105	17	46,529	1,922	33.82	16.62	13.82	1.390	3.60	7.53	0.39	1.33
South & North Alabama.	180	28	80,538	2,870	34.32	11.27	15.12	1.060	6.02	5.23	0.25	1.10
Evansville, Hen. & Nash. Div.	135	28	62,775	2,242	37.90	10.12	12.68	1.270	2.82	3.97	0.27	1.34
Jacquette, Houghton & Ontonagon.	88	22	30,283	1,377	—	—	—	—	0.69	10.82	0.40	0.15
Traverse Div.	291	82	291,307	3,431	21.87	15.08	10.60	2.160	4.15	4.83	1.06	6.18
North. Cent. Elmira & Can. Div.	147	44	104,529	2,375	20.67	20.00	—	—	4.31	6.24	0.44	0.76
Pennsylvania, New York Div.	139	169	536,801	3,061	54.52	11.07	—	—	5.10	7.00	0.80	—
Amboy Div.	186	46	9,628	2,014	5.34	14.99	—	—	5.40	5.50	0.80	—
Missouri, Kansas & Texas.	185	17	98,541	1,790	24.17	16.67	13.82	1.390	4.00	7.10	0.60	—
Philadelphia Div.	172	142	442,164	3,114	35.43	14.16	—	—	2.70	4.10	0.51	—
Middle Div.	182	100	344,074	3,346	25.93	16.72	—	—	2.70	4.10	0.40	—
Pittsburgh Div.	229	170	507,571	2,883	25.30	15.44	—	—	7.00	4.00	0.50	—
Tyrone Div.	116	10	17,915	1,790	24.17	16.67	13.82	1.390	4.00	7.10	0.60	—
West Penn. Div.	164	24	62,230	1,717	36.50	34.72	—	—	7.00	2.90	0.20	—
Lewisport Div.	63	10	17,491	1,719	28.10	14.97	—	—	1.90	3.60	0.41	—
Bedford Div.	37	5	10,282	2,046	32.01	26.04	—	—	2.20	3.20	0.30	—
Frederick Div.	10	9	18,576	2,007	41.55	17.70	—	—	4.10	7.70	0.50	—
Pittsburgh, Va. & Charleston Div.	30	9	18,853	1,870	43.13	15.63	—	—	10.00	2.31	0.40	—
Pitts., Ft. Wayne & Chi. East Div.	371	155	438,618	2,924	41.06	21.88	17.40	0.873	3.22	3.90	0.33	1.03
Western Div.	280	105	317,436	3,023	37.40	17.90	24.82	0.983	4.34	3.45	0.35	1.97
Pitts., Cin. & St. Louis, Little Miami Div.	197	38	116,521	3,000	44.29	14.10	18.08	0.690	3.10	4.29	0.37	2.17
P. C. & St. L. Div.	224	100	593,556	2,951	28.17	19.44	20.70	0.700	5.39	3.12	0.31	2.07
Quebec, Montreal, Ottawa & Occidental.	138	14	50,224	3,587	81.50	45.40	—	—	1.93	6.85	0.27	—
Chicago & Southern.	308	—	57,013	—	45.50	13.90	—	—	2.81	2.57	0.33	—
Savannah, Florida & Western.	343	23	60,706	2,912	—	48.14	20.63	—	4.00	3.40	0.23	—
Delaware, Peoria & Warsaw.	238	42	116,918	2,783	40.40	20.19	16.90	—	4.09	3.53	0.27	—
West Jersey.	129	17	38,451	2,939	53.50	22.32	—	—	2.50	6.90	0.40	—

\* Five empty cars rated as three loaded ones.  
+ Switching engines allowed 6 miles per hour; helping engines, actual distance run and 4 miles per hour while waiting trains.  
+ Switching engines allowed 6 miles per hour.  
+ Fuel not estimated.  
+ Two empty cars rated as one loaded one.  
+ Switching and work-train engines allowed 6 miles per hour.

\* Three empty cars rated as two loaded ones.  
+ Switching engines allowed 6 miles per hour; five empty cars rated as three loaded ones.  
+ Switching engines allowed 6 work-train 6 miles per hour.  
+ Engineers, firemen and wipers' wages not included in cost.  
The ton of coal is 2,000 lbs., unless otherwise noted; 25 bushels counted to the ton.

by tapping them with a hammer. The first 12 years he was here he found an average of 12 cracked wheels per year; the next three years an average of 3 per year, and for the last 3 years he has found none. During the 18 years he has been in Yates City he has tapped, in round numbers, 10,000,000 car wheels. No accident can be attributed to his carelessness, and no wheel has broken between his point and the next, which is Peoria and Galesburg."

#### Lord Beaconsfield on American Railroad Rates.

In the House of Lords on the 12th of February the Earl of Cork moved for a return of the rates of charges authorized by law, and those actually levied by the different railway companies in France, the United States of America, Russia, Italy, Germany, Austria, Holland, Belgium, Denmark, Spain and Portugal.

The Earl of Beaconsfield thought that one instance alone would suffice to show





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## EDITORIAL ANNOUNCEMENTS.

**Passes.**—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

**Addresses.**—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

**Advertisements.**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns our own opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

**Contributions.**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

## AMERICAN AND ENGLISH LOCOMOTIVES.

On other pages are published engravings and description of an "American 'Mogul' type" of locomotive\*, a number of which have recently been placed on the Great Eastern Railway, of England. The engravings and descriptive article are reproduced from *Engineering*. In another part of this paper will also be found a reprint of an editorial from *The Engineer* on "English and American Locomotives." By a curious coincidence, these appeared in the respective papers of the same date. *The Engineer's* article, it will be noticed, is very savage, and its wrath is especially directed against Mr. R. M. Brereton, an engineer connected in some way with the New Zealand railroads, and who wrote a letter or paper, which was "presented to both houses of the General Assembly" of that country, and which, with other papers relating to the subject, has recently been published. In this document Mr. Brereton had the temerity to speak favorably of American locomotives and make some comparison with those built in England, which was more favorable to the former than to the latter. This was too much for the composure of *The Engineer*, and the article, it will be seen, is arrayed in rhetorical war-paint. Its antipathy for everything American is well known. As this seems to be a personal idiosyncrasy, though, it is hardly worth discussing, but what is well worth consideration is the relative merits of our locomotives and those made by our cousins. It is certainly desirable to cultivate an honorable rivalry in this direction, and whatever points of superiority English engines may have over ours, it is of the utmost importance that we should know them. On the other hand, even *The Engineer* would not recommend English engineers to remain in ignorance of any advantages which our engines have over theirs, and for the

\* Since writing the above we have found it necessary to postpone the publication of the engravings, which will appear next week.

purpose of enlightening our own countrymen in regard to what is being done abroad we will republish the description of the English "Mogul" locomotive, which, though of an "American type," it will be seen has many foreign details and methods of construction engrafted on it.

Before calling attention to the peculiarities in the design of the details of these engines, which will be done next week, a little should be said about the difficulties of making comparisons of the efficiency of locomotives which are used under such diverse conditions as they are, and must be, here and in foreign countries. There are, however, some general principles which must be observed in making such comparisons before true inferences can be drawn therefrom. The purpose of a locomotive is to draw trains carrying freight and passengers over a road, and whichever engine does this with the lowest total cost will be the most economical to the company owning it. Although these statements sound like truisms which do not require to be formulated, yet in attempting to determine the efficiency of locomotives they are often not fully taken into account. Thus, nothing is more common than to find master mechanics estimating the economy of the working of their locomotives by the cost of fuel, oil, waste and repairs alone, without reference to the amount of work done, forgetting that the wages of the runner and fireman amount to as much as the cost of fuel, taking a rough average through the country, and therefore that if 10 per cent. more cars are hauled, the company saves as much in wages of these men as it would in the cost of fuel if the consumption of the latter were reduced an equal percentage. In fact, often greater economy can be attained by an increased consumption of fuel per ton hauled, than by diminishing it.

The following must certainly be taken into account in making up the cost of locomotive service before we can determine which of two engines does its work the most economically:

Interest on cost of locomotive.

Cost of fuel, oil and waste.

Cost of repairs.

Wages of locomotive runner and fireman.

Wages of brakeman and conductor.

Cost of housing and cleaning locomotives.

To this should be added a sum annually which would ultimately replace the engine when worn out.

In fixing upon a basis of comparison, it must be kept in mind that on nearly all roads there are two classes of trains, one of which consists of a limited number of cars, as in nearly all passenger traffic, and another in which the number of cars is limited only by the capacity of the engine. In the one, the fairest basis of comparison is the cost per train-mile; in the other, it must be estimated per car per mile, to determine the actual expense of a definite amount of service. The reasons for this will be apparent from what has already been said. In the one case there is a definite amount of service to be performed, and the locomotive which will haul the train the greatest average number of miles per day at the least cost of fuel, oil, waste and repairs is the most economical machine, and the wages of the train-men bear little or no relation to the cost of engine-service. With the other class of trains, though, the case is different. The larger the number of cars that can be hauled by a crew of train-men, the smaller will be the expense of their service per car per mile.

It is evident, too, that if a locomotive, which costs say \$10,000, runs 100,000 miles per year instead of 50,000 miles, the interest charge reckoned at 10 per cent. per annum and in this country until lately it seldom cost a railroad company a less rate for the use of money when all the charges are taken into account would in the one case be  $\frac{1}{2}$  of a cent and in the other one cent per train mile. The cost of housing engines is also increased in an inverse proportion to their mileage, that is, the larger the proportion of time that locomotives can be at work on the road, the smaller will be the number in the engine-houses, and the less the attending expense of keeping them there. These considerations make it evident that the two items of interest and cost of housing engines is diminished in proportion to the work done, if locomotives are capable of making a high mileage in a given time, compared with what these expenses would be with a small mileage.

There is another element which must be taken into account. The traffic of railroads is like nearly all other business; it has its ebb and its flow, its busy seasons and its periods of dullness, and the work of locomotives must be done under conditions analogous to those under which men who have much to do must work. That is, there are times of comparative leisure, and then critical periods, of longer or shorter duration, when the strength and endurance are taxed to the ut-

most, and it often happens that the importance of the issue is the most critical at the time when endurance is subjected to the greatest strain. In such contests the men whose muscles can resist the longest, whose brains will keep on working without rest and resist congestion, who have stomachs for endurance, and nerves which will maintain their equilibrium day and night continually, without repose, are the men who will win in the contest. To break down at such times means failure, and they whose ailments can be cured by a bottle of Congress water or other trifling remedy, but who can keep on at work continuously, are the men who accomplish most. Locomotives must work under analogous conditions. When the busy periods come, it is often a question how to avoid a congestion of traffic, and at such times to be obliged to lay up for repairs would be like busy men being obliged to go to bed and take medicine. If at such periods the locomotives of a road should be incapable of making a large mileage, and to sustain that sort of service for weeks or months at a time, it would mean that the road would require an additional locomotive equipment inversely proportional to the mileage at such times.

Now what is claimed is, that owing to the design and construction of American locomotives, they require fewer repairs, and that these can be done easier and in shorter time than on English engines, and consequently the former can be kept at work longer and make a much larger monthly or annual mileage than the latter.

*The Engineer* admits "that American engines as a rule make a greater annual mileage than the engines on many of our great main lines, although not on all." But this writer says "the consumption of fuel by American engines is per ton per mile hauled from 50 to 100 per cent. in excess of that required by English engines for the same work; and for this statement we are indebted to the Master Mechanics' Institute." That this writer has quoted the proceedings of the Master Mechanics' Association from memory alone is indicated by the fact that he has given the name of it incorrectly, and as he does not give dates or pages it is impossible to verify what he says. The writer of this article, though, has for years been acquainted with the members, has attended the meetings, and been familiar with the reports of that Association, and he can say unhesitatingly that no committee was ever appointed by that Association which had sufficient knowledge of the performance of English locomotives at the time it made its reports to be able to say that any lines in Great Britain were or "could be worked with an expenditure of fuel so small that nothing to parallel it could be found from one end of the 78,000 miles of railway open in the United States to the other."

At one of the meetings of the Master Mechanics' Association it was suggested, whether by a committee or a member we cannot recall, that it would be an interesting experiment to get an English engine in this country, and test it to find out whether its consumption of fuel would be as much less than that of American engines as has been reported.

It would be idle, though, to show how little ground *The Engineer* has for its assertion that American engines burn from 50 to 100 per cent. more fuel than English locomotives. To attempt to torture a suggestion to try an English locomotive on an American road, in order to find out its performance, into an admission of American locomotive superintendents that the difference actually is what it is said to be, is very unfair. On the other hand, there could hardly be a fact of greater importance to American railroad managers than to know that foreign engines surpass our own to the extent *The Engineer* says they do, and therefore if the proof of the assertion could be presented, no class of people ought to be so willing to learn it as American locomotive engineers.

But such proof is not easy to get. Locomotives work under such different conditions in the two countries; the fuel, the climate, the roads, grades, curves and track are all different. Then, too, as has been shown before, it is unsafe to infer that because a locomotive burns the least amount of fuel per ton hauled per mile, therefore it is doing its work the cheapest. If it burns 10 per cent. less fuel in proportion to the work done, but hauls a load 10 per cent. less, it generally follows that there is more loss in the wages of the train-men than there is gain in the fuel saved.

It has been asserted a great many times that English locomotives do not haul as large trains in proportion to their weight as American engines. Whether the statement is true or not we will not attempt to show now, but it is evident that their performance in this respect has a most important bearing on their economy of working. In this, as in other things, it is difficult to establish any standard of comparison, owing to the difference in grades on the various roads. While a train



of 25 cars may be a heavy load on one line, 40 may easily be taken on another. As the question is of so much interest and importance in both countries it is to be hoped that *The Engineer* will give some statistics which will give the whole world some correct information on the subject. As far as possible we will attempt to reciprocate by giving whatever data are procurable here which will shed light on the disputed question.

One more word. Some time ago *The Engineer* worked itself into a paroxysm about an article on English and American locomotives, published in a popular magazine, and attributed it to the instrumentality of a prominent locomotive-building firm here. The article was prepared by a professional magazine writer, without any special knowledge of the engineering questions involved, and seemed to be rather a harmless production for which, as we happen to know, the writer was paid by the publishers of the magazine about at the same rate as he receives for stories and similar productions. Under the circumstances the gory-handed manner in which our usually dignified contemporary "went for him" was entertaining. It would be hardly worth referring to again were it not for the opportunity which it gives of doing justice by saying that in attributing its origin to the locomotive firm referred to *The Engineer* has been "barking up the wrong tree," and that the parties referred to were in profound ignorance even of the appearance of the article until after *The Engineer* had assumed the attitude of a Zulu toward its author.

#### EAST-BOUND RATES.

A reduction in east-bound rates has been urged by some of the shipping interests lately, and of course would be advantageous to the holders of the immense stocks of grain which have accumulated at some of the Western markets, who evidently have counted upon such a reduction about this time, if, indeed, they have not confidently believed that by controlling the chief part of the grain in warehouse in few hands they would secure during most of the winter a general break in rates and special contracts to themselves as large shippers, which alone would give them a profit of three to six cents a bushel on their immense holdings. These people of course would prefer a break in rates—that is, lower rates to them than to other shippers—to an open and regular reduction; but if they cannot have the first they would like the second as soon as possible. On the other hand, the holders of the 14,000,000 bushels of grain at Atlantic ports will probably not welcome any change which will make it easier to bring Western grain into competition with their holdings to supply the immediate demand. But Western holders reason that the railroads will reduce rates now in their own interest, because navigation is likely to be open within six or eight weeks, or perhaps sooner, and the roads will prefer to carry at 35 or 30 per 100 lbs. the stocks now in elevators rather than have it held till navigation opens and then get but a small part of it, and then in competition with lake vessels and at 25 or 20 cents, or even less. This is an argument that tells, but too much weight may be given to it. It is not only important for the railroads to get some profit for carrying the grain now in store at lake ports, but also to get a share of the grain and at paying rates after navigation opens. Now, if the railroads make rates so low in March and April as to leave light stocks in lake elevators when navigation opens, then the competition of lake vessels for cargoes will be such as to make lake (and canal) rates very low, which may cause the whole spring and summer grain business to be profitless to the railroads, as it often has been heretofore. They are greatly interested in having a good business for the vessels; otherwise the latter will surely spoil the through business for the railroads. But it is none the less true that as the opening of navigation approaches it becomes necessary to reduce rail rates so that they may not be much higher than the water rates will compel them to be after that event. Shippers will hold grain a month or six weeks to get the benefit of water rates where they would not hold it from January to May for the same advantage. Of course there may be great differences of opinion as to what lake and canal rates will be, but there is a pretty definite market for the first cargoes down, there being a considerable tonnage in Chicago harbor still which accepts cargoes to hold till navigation opens, and the rate seems to be about  $7\frac{1}{2}$  cents per bushel for corn, part of which is chargeable to storage doubtless, though if the grain is taken from elevators (as usually it must be) it pays just as much storage as if it were held till May. Besides this indication of spring lake rates we have the contracts for carrying ore and lumber, many of which are made for the season, and, as we understand,

at about as high rates as were had last fall, when the railroads were pressed with traffic at a 35-cent rate. There is then very good reason to believe that water rates will be much higher this spring and summer than they have been for several years, provided they are not forced down by the action of the railroads themselves; and if higher, then there is no reason why the railroads should not have a good share of the grain traffic at a profitable rate. It will not matter if they do not have so large a share of it as last year and some other years. The large traffic in those years was not worth having, because it was carried at a loss.

Now, if the railroads are going to carry at 30 cents per 100 lbs. or less after navigation opens, then no doubt it will be wise to reduce rates somewhat directly. A change of more than five cents per 100 lbs. at a time is too great, and it would hardly be advisable to make four tariffs in nine weeks. But if the rail rate is to be 30 or even 35 after navigation opens (and with present prices of supplies it ought not to be lower than 30 if it can possibly be helped), then there should be no haste in reducing the present 40-cent rate. However, shippers have been accustomed to a reduction in March, and if they refuse to forward their grain—that is, if the shipments are lighter in March than they have been in the winter—some reduction will doubtless have to be made.

In view of the great speculation in wheat, it seems very doubtful whether a reduction in rates would increase shipments of that grain from lake ports. There is an enormous stock there, it is true, and more arriving, but there is also an enormous stock at sea-board ports, and, doubtless, more than enough to meet any export demand we are likely to have before the opening of navigation. As we have noticed elsewhere, the present movement is chiefly in corn, and very little in wheat. But while there are enormous stocks of wheat at the seaboard, stocks of corn are low—in New York not more than a tolerable week's receipts. Now, under these circumstances, a moderate reduction of rates might largely increase corn shipments, while wheat would be little affected thereby. It is questionable, therefore, whether it would not be advisable to make a special rate for corn, at least for a time; it is not worth half as much as wheat where it is produced, and it is perfectly rational to make a lower rate on it when circumstances seem to require it. Indeed, the Southwestern Association has commonly made its corn rate five cents lower than its rate on other grains. A very large proportion of the price of this grain at the sea-board consists in transportation charges. Corn which is worth about 55 cents in New York now brings but 20 or 25 cents on farms in Western Iowa, and a difference of 5 cents per 100 lbs. or 2.8 cents per bushel in the transportation rate from Chicago is equal to about 12 per cent. of what the farmer gets for it. But the fact that stocks of the corn at the sea-board are low is the best evidence that a movement might be promoted by a reduction on this grain when wheat might hardly be affected at all.

It is probable that the question of reducing rates will engage considerable attention from the members of the Joint Executive Committee at the session which opens in Chicago this week just after we go to press, though it is quite uncertain whether there will be any action on it at this meeting. An interchange of opinions may be expected, certainly; action only if it is decided to reduce rates immediately, as it will not do to give notice in advance of any action of this kind. When a reduction becomes inevitable it will take very little time or trouble to decide upon it, but though circumstances may determine the time, an interchange of opinion may make it pretty generally understood how much of a reduction should be made at once, and whether it should extend to all grains at once, or to corn only, or be greater on corn than on other grains. Considering the small value of some grains, it does not seem reasonable that all changes in rates should be as much as five cents per 100 lbs. under all circumstances. Other changes in prices go by cents and fractions of a cent frequently, and lake rates vary from day to day by quarters and eighths. Rail rates on grain after navigation are largely determined by water rates, and an attempt to follow these by putting on or taking off five cents per 100 lbs. at a time is very clumsy. With lake rates 5 cents and canal rates 10 cents suppose that the railroads get a fair share of the traffic at 30 cents per 100, but not when the water rate falls from 15 to 14 cents. Now to meet this reduction by water by a reduction of 5 cents (3 cents per bushel on wheat) by rail may simply force water rates still lower, and so injure both the railroads and the vessels. When rail rates were rarely less than 50 cents, a difference of five cents may have been very well as a minimum; but when they are 20 or 15 cents, as they often have been recently, or even 30 cents, it is an enormous difference. This, how-

ever, applies better to differences at other times of the year than when preparations are made for the opening of navigation. Then a change of five cents or even 20 cents may become necessary within a few weeks.

Considering the possible action of this week's meeting, what is said above may come the day after the fair. But if any reduction is made now, it will probably not be expected to last after navigation opens; and what we wish to emphasize is the fact that the railroads cannot hope to have a profitable business after navigation opens, unless the vessels do too. Nothing is more certain than that the vessels will carry the grain at much less than the cost of carrying it to the railroads, if there is not enough grain to keep all the vessels busy. It must be remembered that this is substantially the only traffic for the largest part of the lake marine. They must get grain or tie up at their wharves, and rather than do that they will carry for little more than is necessary to pay their crews and insurance charges.

#### RECENT SUPREME COURT DECISIONS.

The views of the United States Supreme Court upon questions of railroad law will be regarded as of more importance in view of increasing disposition to extend uniform national rules and supervision. The ninety-ninth volume, just published, of the Supreme Court Reports contains about twenty decisions upon railroad cases, some of which may have general application. There is, for example, the case of the Southern Express Co. vs. the Western North Carolina Railroad Co. It appears that the railroad company, being somewhat short of funds for needed equipment and repair of the road, obtained from the express company a loan of \$20,000, to be expended for those purposes. The express company stipulated, and the contract provided, as a condition of making the loan, that the express business should have privileges and facilities over the railroad, for one year certain, and longer until the loan should be repaid with interest. In other words, the goods in charge of the express were to be carried back and forth over the railroad without immediate payment, and the freights were to be charged against the loan. The embarrassments of the railroad company increased, and soon a receiver was appointed. The express company called upon him to continue to carry their goods under the contract, charging the freights against the loan. This he refused to do, saying it must pay cash. Then it asked him to repay the loan in full. He said he must pay the bondholders, in whose behalf he was appointed, first. Then it brought suit. The Court sustained the receiver. The decision is in effect that a receiver is not bound by outstanding traffic contracts of the company, in any such sense that the courts will compel him to perform them. And that, as the bondholders had a lien by mortgage on the road, while the express company had not, the express company's loan must wait and take such dividend as could be made among non-preferred debts. Obviously it is taking a grave risk to make advances to an embarrassed railroad on account of future freights.

Three cases in the volume involve the question of the true ownership of cars conditionally sold to a company on credit. The chronology of the facts in the principle case was: 1. The railroad company mortgaged its road with all rolling stock, etc., it might afterward acquire, to secure a bonded loan. 2. Needing more cars it bought two hundred, upon the agreement, that the price should be payable by installments, and until all should be paid the cars should remain the property of the seller. 3. A foreclosure of the mortgage was commenced and a receiver appointed. He, finding that payment for the cars was in arrears, but needing the cars for running the road, made a new agreement with the seller to pay seven dollars a month on each car, called "rent," until the whole price and interest should be paid. 4. This rent was duly paid; but before payment of the whole price was thus completed, the time came for the sale of the road in foreclosure; and then the seller claimed to have his cars returned to him, and to be paid his arrears out of the proceeds of the sale. The decision was that he was entitled to a return of the cars. They had never become the property of the company, and therefore never became a part of the security of the mortgagees. But, as to his arrears of price which occurred before the receiver was appointed, he was only a general creditor. He had no lien on the fund derived from sale of the road for his contribution of the use of the cars toward running it. This was a contribution toward current expenses; and the just principle in such cases is to apply current income first to current expenses, proceeds of sale first to mortgage debt. On this subject Chief Justice Waite says:

The business of all railroad companies is done to a greater or less extent on credit. This credit is longer or shorter as the necessities of the case require; and



when companies become pecuniarily embarrassed it frequently happens that debts for labor, supplies, equipment and improvement are permitted to accumulate, in order that bonded interest may be paid and a disastrous foreclosure postponed. In this way the daily and monthly earnings which ordinarily should go to pay the daily and monthly expenses are kept from those to whom in equity they belong, and used to pay the mortgage debt. The income out of which the mortgagee should be paid is the net income obtained by deducting from the gross earnings what is required for necessary operating and managing expenses, proper equipment and useful improvements. Every railroad mortgagee in accepting his security impliedly agrees that the current debts made in the ordinary course of business shall be paid from the current receipts before he has any claim upon the income. If, for the convenience of the moment, something is taken from what may not improperly be called the current debt fund and put into that which belongs to the mortgage creditors, it certainly is not inequitable for the court, when asked by the mortgagees to take possession of the future income and hold it for their benefit, to require as a condition of such an order that what is due from the earnings to the current debt shall be paid by the court from the future current receipts before anything derived from that source goes to the mortgagees.

How to compute "net earnings" is explained in a decision between the Union Pacific and the United States. It is familiarly known that that company's contract with the government contained a condition that, from the time when the road should be completed, at least 5 per cent. of the "net earnings" should be applied toward paying the bonds. The income of the company has consisted, during recent years, of freights and fares in ordinary traffic, of payments from government for transportation of mails, etc., and of price of lands sold. The company claimed to deduct the expenditures incident to all three of these branches—the cost of keeping up the land department, the interest on the general debt, and the running expenses of the road—in computing "net earnings." But the Court holds that both the receipts and the disbursements of the land department must be laid out of view. The "earnings" of the company include its fares and freights, whether from government or the public. And the "net earnings" are to be ascertained by deducting the expenses incurred in realizing the earnings, the disbursements for services, supplies, etc., in operating the road, and the cost of ordinary improvements and repairs; but not expenses incident to sustaining the land department, nor interest on a funded debt. This is a sound, common-sense decision of a question which arises oftener than some may suppose. State tax laws sometimes require corporations to pay taxes on "net earnings" or "net income." There was a case, under a law of this kind, of a petroleum oil company, and another of a coal company, where the companies contended that the loss in value of their mines from taking out a quantity of oil or coal each year ought to be estimated and deducted from income before they should be required to pay a tax. But the courts said that "net earnings" in the tax law meant what was left of current income after deducting current expenses. There was also once a suit against the Erie Railway Company on this point. Preferred shares were issued upon an agreement that they should have a preference in dividends out of the "net earnings." Not long afterward the company leased some auxiliary or tributary roads. Then the question arose whether income derived from these was to be included in computing net earnings. The Court said, Yes; the road must be treated as a whole; the receipts of the entire business of trunk and branches were the "earnings," and what was left of these after deducting the entire cost of carrying on the business was the "net earnings." Thus there are many ways in which the mode of computation of net earnings may become important.

There are several cases upon rights of buyers of city or county bonds issued in aid of new railroads. Every one knows how liberally, years ago, municipalities issued and loaned their bonds to encourage construction of roads, and how astute and ingenious they afterward became in finding reasons why the bonds should not be paid, at least by taxing the citizens. In the case of *Bloch vs. Commissioners of Bourbon County, Kansas*, the Court explains the law to be that a person who buys bonds of this description in open market, without his knowing any objections to them, and pays money down for them, has only two points to ascertain. One is, whether the city or county had received authority from the legislature to issue the bonds. The other is, whether the officers authorized to make the issue have inquired and decided that the conditions to permit it have been fulfilled. If a purchaser in good faith and for value is careful as to these two points, he can en-

force the bonds, no matter what irregularities that he knew nothing about in fact existed, or what loss the city or county may have sustained, for which he is not to blame. If the officers had power to issue the bonds on certain conditions, and decided and certified that those conditions existed, the purchaser is protected. This has been decided before, but seems not to have become fully understood.

The concluding seventy pages of the volume are occupied with the noted decision sustaining the Thurman act of Congress, passed in 1878, for compelling the Union and the Central Pacific roads to establish a sinking fund for the discharge of their immense debts to the government. The report includes the dissenting opinion of Mr. Justice Field, which attracted so much attention when delivered. A full telegraphic summary of the case was published in the *Railroad Gazette* at the time of the decision. When these roads were chartered, the Central by California and the Union by Congress, the country was convulsed by war, the far West was a trackless wilderness, and commerce with California was uncertain. Government aid was needed and was liberally accorded; the more so that the construction of the road was imperatively needed by government. The United States loaned about twenty-seven millions of government bonds to each company, and each company issued about as many millions of its own bonds; and the whole \$110,000,000 were sold by the companies, putting them in funds to construct the road. By 1878 about one-third the term of the bonds had elapsed, yet Congress seems to have been unconvinced that the companies were making any adequate reservation of moneys to meet them at maturity. Hence the Thurman act. It directed that 25 per cent. of the companies' surplus earnings over expenses and interest on their first-mortgage bonds should be accumulated in the Treasury of the United States to form a sinking fund for payment of the bonds. As was natural, the companies contested this enactment; arguing that government must stand by the original terms upon which it loaned its bonds; that exacting an annual contribution years before the debt is due is taking property "without due process of law;" and that Congress cannot interfere with the fiscal management of a company (the Central Pacific) chartered by a state. But a majority of the judges concurred in sustaining the law. The decision seems to provide security for the immense bonded debt; also to show that granting government aid to a state chartered corporation may bring its financial management under Congressional regulation; and to sustain any legislature in requiring corporations subject to its authority to set apart a sinking fund toward payment of future obligations.

#### The Illinois Central Report.

The Illinois Central is almost the only large Western road which in the days of rapid railroad construction before 1873 did not increase its mileage. Before 1870 it acquired the last of its Iowa lines, and from that time down to the close of 1877 it worked every year 1,107½ miles of road. In another important particular also the company was stationary. At a time when traffic in the West was growing rapidly, its traffic was at a stand-still, or worse. In 1877 its passenger traffic was the smallest since 1867, and its freight traffic the smallest since 1868. Gross earnings had decreased continuously since 1870, and that net earnings had not also decreased greatly was due to a reduction of expenses astonishing even in those times of great reductions of expenses. In 1872, when they were greatest, these had been \$4,846,855; in 1877 they were brought down to \$3,122,443, or more than one-third.

In 1878 the Illinois Central added the 111½ miles of the Springfield Division to the mileage worked by it; and constructed 36¼ miles of the Chatsworth Division, which it extended further in 1879. These are not very important additions to the system of the company, having a light traffic, and are valuable chiefly because they cost very little. But as the road began to grow the traffic began to grow also; there was a very large increase in freight traffic (a decrease in passenger traffic, however,) from 1877 to 1878, and there has been a large one in freight and a small one in passengers from 1878 to 1879. The course of traffic, gross and net earnings and expenses for ten years will be seen below:

	Passenger-miles.	Ton-miles.	Gross earnings.	Expenses.	Net earnings.
1870..	54,395,200	263,409,400	\$8,078,958	\$4,759,008	\$3,919,950
1871..	50,500,800	262,157,400	8,401,142	4,041,920	3,759,222
1872..	51,779,991	272,290,900	8,026,754	4,846,855	3,179,899
1873..	48,503,682	275,303,422	8,268,325	4,900,109	3,068,216
1874..	51,115,268	273,559,253	7,900,721	4,030,151	3,870,570
1875..	50,828,505	284,650,911	7,802,556	3,989,447	3,813,109
1876..	51,238,031	264,602,314	7,040,969	3,845,943	3,195,026
1877..	46,076,845	249,345,911	6,639,845	3,122,443	3,517,402
1878..	43,840,307	266,345,001	7,111,184	3,087,435	4,023,749
1879..	44,580,972	335,470,860	7,254,404	3,026,700	4,207,704

The mileage producing these results was 1,107½ miles for the first eight years, an average of 1,225½ miles in 1878, and 1,356 miles in 1879. Within these

ten years the district occupied by this company in Central and Southern Illinois has been crowded with new railroads, vastly increasing competition and dividing the traffic of the country. This is the explanation of the stationary or rather decreasing traffic down to 1877, and the small passenger traffic since.

But the recovery since 1877 is just as marked in earnings and much more so in freight traffic than the downward movement before. The freight traffic has been the largest in the history of the road, and in 1879 was no less than 34½ per cent. greater than in 1877. The increase has not come wholly from the new lines, which have light earnings of about \$2,500 per mile, and last year together contributed but \$372,000 to the gross earnings; in 1878 only \$286,000. Subtracting these, we still have an increase of about \$170,000 in gross earnings from 1877 to 1878, and of \$223,000 from 1877 to 1879.

These increases would not be by themselves particularly noticeable, were it not that they succeed a prolonged decline of traffic and earnings; but what is particularly noticeable is the continuance of the decrease of working expenses during these two years of increasing traffic and earnings. With freight traffic 34½ per cent. greater, expenses were 3 per cent. less last year than in 1877. This it is, more than anything else, that has made the net earnings larger in the last two years than in any of the eight previous, though in 1870 the gross earnings were about a million and a half greater.

The decrease in working expenses last year was but little, it is true, but it was made when, during part of the time, prices of supplies were advancing, as well as with a larger traffic. And it cannot be credited to increased train-loads, for there was an increase in train mileage about equal to the increase in traffic. The largest saving was in maintenance of way expenses, but though they decreased more than 8 per cent., a larger consumption of new and re-rolled rails is reported (at less cost) and very nearly as great a consumption of cross-ties.

The Iowa lines of this company, strange to say, show little progress. There is a fertile country along them, which is convenient to markets and to a very great extent unoccupied; yet it does not seem to profit much from the tide of immigration which has so greatly increased the population of Western Minnesota, Eastern Dakota, Nebraska and Kansas during the past few years. The earnings of these lines (402 miles) have been:

Year.	Earnings.	Year.	Earnings.
1870.....	\$1,467,405	1875.....	\$1,850,128
1871.....	1,348,691	1876.....	1,619,277
1872.....	1,413,321	1877.....	1,513,139
1873.....	1,677,301	1878.....	1,538,558
1874.....	1,627,895	1879.....	1,523,182

The rental last year was \$615,832, or 40 per cent. of the earnings of these roads, and considering their small earnings per mile, it is probable that this is more than their net earnings. The western section leased, from Iowa Falls to Sioux City, last year earned \$2,620 per mile, which may yield some profit; but the Cedar Falls & Minnesota line, extending northward 75½ miles, nearly parallel with and close to the northern part of the Burlington, Cedar Rapids & Northern, earned but \$1,509 per mile. This latter line is badly elbowed by competing roads, but the line from Dubuque to Sioux City is well placed, and the country along the western part of it is so promising that the Chicago, Milwaukee & St. Paul has been induced to build a parallel line some 30 miles further north within the past two years. Indeed there can be no doubt that it will at some day, probably not far distant, support a large agricultural population and ship enormous quantities of produce, as is the case already on the parallel Iowa roads further south.

#### Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

*Southern Pacific*.—Extended from Casa Grande, Ariz., southeast 23 miles.

*Wilmington & Northern*.—Track is laid on the French Creek Branch from Springfield, Pa., to St. Mary, 3 miles.

*Detroit, Lansing & Northern*.—The track of the Stanton Branch has been extended from Blanchard, Mich., north by west 8 miles.

*Port Huron & Northwestern*.—Extended from Crosswell, Mich., northward to Carson, 12 miles. Gauge 3 feet.

*Milwaukee, Lake Shore & Western*.—Extended from Tigerton, Wis., northward to Carbonate, 7 miles.

*Wisconsin Central*.—Track laid on the branch from Menasha, Wis., to Appleton, 6 miles.

This is a total of 59 miles of new railroad, making 305 miles reported thus far this year, against 83 miles reported for the corresponding period in 1879.

THE JOINT EXECUTIVE COMMITTEE, which holds a session in Chicago this week after we go to press, may possibly have some delicate matters to attend to. The question of east-bound rates we have referred to elsewhere. There have been very recently complaints that some one has been



cutting rates between St. Louis and the sea-board on shipments from Kansas City, something which cannot easily be done without detection under the present arrangement, and which probably will be stopped very quickly. The Grand Trunk will be ready in a few days to open its new line out of Chicago, and it may apply for an award of a definite share of the Chicago shipments at this convention, though not necessarily. It is understood that the company has agreed to submit the matter to arbitration, if an agreement as to its share of the Chicago business cannot be reached otherwise. The difficulty is to find a basis for an award, as it has no record to base its claims on, except in connection with the Michigan Central, by which we believe it has not hitherto received so much as 4 per cent. of the Chicago shipments on an average. It will claim, doubtless, that it could not get as much through the Michigan Central as by a road of its own, which is probable, though for a long time the Michigan Central was charged with favoring the Grand Trunk unduly. It will command a share of the shipments to Boston and New England points and also to New York, though, as to the latter, it stands at some disadvantage, as the eastern half of the line is commanded by other and rival roads. It may not seem plain why the Erie should be a rival road, and indeed the new Grand Trunk route would seem to be just what the Erie wants to give it a favorable connection with Chicago. But the Erie has other connections with Chicago and close relations with rivals of the Grand Trunk which might be seriously injured should it make a combination with the latter road, which has not even been suggested, so far as we know. Moreover, the Erie has now a line to Boston and New England, and the Grand Trunk doubtless prefers to take that traffic by way of Toronto and Montreal, in order that it may get the longest possible haul on it.

The Committee has reason for great satisfaction that under its legislation, if we may so call it, rates have been maintained all winter as probably they never were before. So much has been gained absolutely, beyond peradventure. But it is not enough to have maintained rates in the winter, even though they have been of late years most difficult to maintain at that season. Each season has its own difficulties, and it cannot be said that the combination is a full success until it has been in operation at least one year. We are inclined to think that very much depends upon the next two months. If rates can be successfully maintained until after navigation opens, we shall have a reasonable certainty of having made the best of this crop-year, say till August next, and a most excellent start toward making the best of the next one, though what that best may be no one can now say.

AMERICAN RAILROAD RATES were recently the subject of discussion, or mention, in the British House of Lords, when Lord Beaconsfield made an astonishing exhibition of ignorance, considering that he pretended to give an authoritative statement of facts. A request had been made for a return of "the rates of charges authorized by law and those actually levied" by the different railroads of different countries. To illustrate the difficulty of complying with this request Lord Beaconsfield said that in the United States every state had a law of its own, and, moreover, "possessed unlimited discretion, without any legislative action, as to altering the railway rates on every route and on every article." We believe there is but one state that pretends to any such discretionary power, and the statement seems to be based on the wildest claims made by the most radical grangers in the height of the granger excitement. However, the difficulty of presenting the "rates actually levied" was hardly exaggerated by Lord Beaconsfield, though it would be perfectly easy to give examples of rates for different distances by different routes and average rate, by different routes and in different states which would fairly illustrate the rates of this country and ought to be interesting in England. But what seems to us more needed than any statement of American, French or German rates is one of British rates, which are less known and more difficult to ascertain than those of any other country. Apparently the information does not exist which makes it possible to ascertain the average rates on British roads. They report the number of passengers and tons of freight they carry, but not the mileage of passengers and freight, so that we are left wholly in the dark as to the amount of traffic which brought in the total passenger and freight earnings. In default of this, it would be interesting to know some instances of the actual tariffs on freights of different kinds for different distances on different routes. Some old parliamentary reports give these, but in the matter of railroad rates, a report of the charges in 1865 or 1871 is not worth much: it would not be in this country, at least. Passenger rates, on the other hand, are easily ascertainable (but not average rates) from the British railroad guides.

THE SOUTHERN RAILWAY ASSOCIATION is in danger of dissolution, though, perhaps, not so much so as would appear from the fact that the Chicago, Rock Island & Pacific has given notice of its withdrawal. The agreement provides that ninety days' notice shall be given of any withdrawal; and in ninety days there is time for renewing the old or making a new agreement. But what is more threatening than this notice of withdrawal is the fact that the present agreement is not now carried out. It appears that there are a good many irregularities in rates and a general demoralization which is not at all encouraging. As nearly as we can learn (the fact that there is trouble is well known, but little has been said as to what the trouble is), the origin of the difficulty is the refusal of one road which has secured a great

deal more than the proportion of the traffic awarded to it to turn over traffic or pay over earnings to another which has received a great deal less than the proportion awarded to it. Under any circumstances the traffic would have to be re-distributed soon. The Wabash will soon enter Chicago, and will have such connections west of the Mississippi (and perhaps west of the Missouri) as will enable it to make pretty heavy demands in a way that cannot pass unheeded. It is impossible now to say what will be the result, but we believe that all parties will be glad to join in a new combination if the old one cannot be maintained, though there would be a great deal more confidence in the permanence of their agreements, and the companies would have better credit, if the change were made regularly rather than by violence, as it were.

THE WESTINGHOUSE BRAKE, according to statistics recently published in England, where there is now a very sharp competition among the proprietors of the different continuous brakes, has been applied to no less than 5,296 locomotives and 21,329 cars in different parts of the world. Of these, the automatic system has been applied to 1,770 engines and 5,218 cars in this country, to 362 engines and 2,337 cars in England, to 303 engines and 1,608 cars in France, to 143 engines and 1,440 cars in Belgium, to 53 engines and 87 cars in Germany, to 52 engines and 124 cars in New South Wales, and to smaller numbers in Russia, Holland, Sweden, India, South Australia, and Queensland. The non-automatic, or old system, is used very little, except in this country, where 2,677 engines and 10,244 cars have it. Fourteen different British roads have the automatic brake, but only a few seem to have it in general use on their passenger trains, eight having less than ten engines equipped with it. But the London, Brighton & South Coast (a great passenger road) has it on 122 engines and 1,195 cars, and the North British on 65 engines and 446 cars. One of the great French companies (the Western) has it in general use (177 engines and 1,460 cars) and so have the Belgian state railroads, where it is applied to 143 engines and 1,140 cars.

#### The Impolicy of Buying "Cheap" Supplies.

[From a forthcoming work on "Railway Expenditures," by Marshall M. Kirkman.]

The necessities of a company, real or imaginary, or its lack of wisdom as manifested in the character of its officers, may induce it to purchase supplies of an inferior quality. When this is so the loss occasioned cannot, in a majority of instances, be traced, except indirectly, as in the case of fuel already noted.

For many years back, the rails in the tracks of a large number of our companies—perhaps a majority of them—have been of inferior quality. The times were not propitious, business of all kinds was unprofitable, the companies were poor; the desire to buy things at a low figure was consequently universal. The period we refer to was intermediate between the use of iron and Bessemer steel. The manufacturers had lost the art of making the former cheaply and well, and had not yet acquired the ability to produce the latter at a rate the railroad companies felt able to pay.

The effect upon the companies of using poor metal in their tracks was quickly discernible in the consumption of the rails laid. It was also perceptible in many ways outside of the greatly increased cost of keeping the track in a condition that rendered the movement of trains possible. It was perceptible in the account for injuries and in the fees of coroners, surgeons and nurses; in the account for losses and damages to property; in the expenditures for legal services; in the expenditures for broken-down bridges and culverts, for repairs of equipment and other tools and machinery, for labor of various kinds, for the fuel used by locomotives, and finally in the diminished receipts of the property. Many of the companies were slow in discovering the loss occasioned by the use of poor rails; some of them have not yet discovered it; not a few were dilatory in effecting a remedy after the discovery of the cause.

Doubtless it requires a knowledge of railway affairs that the ordinary proprietor does not possess, and cannot hope to possess, to enable him to appreciate fully the fact that unless a company maintains a good substantial road-bed and track, of durable quality of metal, favorable results cannot long be expected to attend its operations. We can readily believe in such ignorance and can excuse it, but in all practical questions of management of this kind, the proprietor should be content to accept the judgment and experience of his manager; it is only when he ceases to regard his advice that we condemn his ignorance.

The smoothness and elasticity of the track of a railroad affects directly the cost of keeping the rolling stock in condition, and the cost of a poor track is quite as apparent in the large expenditures for keeping the equipment in serviceable order as it is in the enormous disbursements that will be required for the track itself.

Only an experienced and far-seeing manager can withstand the seductive influence that envelops an article of prime necessity to his company when offered at a low rate. The fact that its ultimate cost will be out of all proportion to the temporary saving is lost sight of or ignored by him. The immediate and visible reduction in the cost of operating and the notoriety that will attach to him for effecting such reduction is too strong for a weak man to withstand. This would not be the case to the extent it is, if so great a proportion of the loss which a company must ultimately suffer in consequence of the purchase of superior material was not blotted out or covered up under foreign headings, and remained, in consequence, unknown.

The track of a railway company affords, it may be said, the largest single item of expense it has. It is therefore in connection with it that the greatest and in many instances

most unadvised effort at economy is attempted. The data afforded by the statistical returns of railroads is too meagre however to enable us to accurately and fully illustrate our conclusions. We have, for instance, no exact or reliable data of the actual cost per pound or per lineal foot of changing rails in the track; but we know generally if we attempt to recapitulate the cost that it involves, a, the first cost of the new rail less the value of the old at the point of delivery; b, the cost of transportation for both the old and the new material; c, the cost of unloading the new and loading the old;\* d, the actual cost of labor attending the loosening of the old rail and the insertion of the new one in its place; e, the value of the chairs, spikes, plates and bolts destroyed during the process; f, the wear and tear of tools employed in connection with the work; g, the delay of business more or less marked and expense incident thereto; h, the increased wear and tear arising from imperfect alignment of track which the change temporarily occasions; i, the injury, however slight, to the cross-ties caused by the change; j, and finally, the destruction that is accomplished before the worn and battered rail is taken out and a better one substituted.

The actual cost to a company on account of many of these items cannot be ascertained, but whatever the amount may be it is supplemental to the first cost of a rail and recurs as often as the track is renewed. By keeping these facts in mind we may hope to be able to measurably appreciate the vital importance to a company of its purchasing only good, serviceable rails for its track. Only a wealthy company, it is apparent, can purchase any other kind without endangering its permanency and credit.

The importance of a durable track is so essential to the prosperity of a company that it is no exaggeration to say that the introduction of the Bessemer process, whereby the duration of the rail is much prolonged, has enabled many properties to earn fair and continuous dividends that would otherwise have possessed no value whatever to the owners.

The duration of an iron rail, whether new or re-rolled, varies according to usage and the accident of quality (the latter being quite beyond the control of the manufacturer) from forty-eight hours to thirty-six months; some will not last the stipulated forty-eight hours, while a few will still be in serviceable condition at the end of the allotted three years. It is manifest that the drain upon the resources of a company using such material cannot but be out of all proportion to the infinitesimal saving it effected in the purchase of iron instead of steel.

What we have said in reference to inferior track rails applies with even greater force to inferior cross-ties. A poor rail when no longer of use may be sold to the manufacturers, but a cross-tie is practically worthless when no longer available for use in the track.† Beside this, its removal in many cases is much more difficult than the removal of a rail, and the alignment of the track is as a rule more seriously disturbed in the former than in the latter case.

Ties manufactured from what we call soft woods are not only not able to withstand the wear and tear of heavy business, but they decay much more quickly than oak and other hard-wood ties; the cost, however, of transporting the latter and inserting them in the track is not greater than for the former; it is, therefore, manifestly for the interest of every company to use the latter when the difference in the purchase price is not greater than the subsequent difference in the length of time the ties will last.‡

The expensiveness of a poor bridge is relatively quite as great as a poor rail or cross-tie—it is greater in some instances. The cost of removing such a structure frequently exceeds the original outlay, it being necessary in some instances (notably in the case of draw-bridges), to build a temporary structure by the side of the one that requires removal, while the permanent structure is being erected on the site of the one that is no longer available. Leaving out of consideration, however, all the peculiar circumstances directly connected with the maintenance of cheap bridges, the incidental outlay that they involve for repairs, for persons killed or injured, for property destroyed or damaged, for injury suffered by the equipment of the company, caused by their breaking down, to say nothing of the loss of revenue occasioned by the distrust of the route engendered in the mind of the community, is out of all proportion to the saving effected by the erection of a poor structure. And, generally, in reference to the structures of a temporary character, such as depots, round-houses, work shops and water stations, that we find thickly clustered about many new enterprises, the ultimate loss to the company erecting them is double, sometimes treble, the cost of a first-class edifice. The building is but a makeshift at best; its facilities are inadequate, the cost of keeping it in condition large, and its ultimate destruction or removal with all the expenses incident thereto, inevitable. It follows

\* In many cases the company has to load and unload both the old and new material, and it frequently happens that the rails are loaded and unloaded several times before being finally disposed of.

† Huntington in his treatise, page 100, on railroad track, however, points out, though in a somewhat forced way, we think, some of the uses to which old and worn-out ties may be put, namely:

"To patch temporarily broken fences; to make footings for washing embankments; for temporary platforms for piling rails; fuel for drying sand at sand stations; fuel for section men. Sawing up old ties for engine-wood is not profitable unless wood is worth \$5 per cord."

‡ Practically old ties are of no use except for fuel for track section men and others located in the immediate neighborhood where they are taken out.

In another part of Huntington's book, p. 105, he quotes, without comment, the regulations of the Atlantic & Great Western Company directing that "all old ties which may be removed must be gathered at the close of each day and put in some convenient place for burning."

§ As rails are laid in this country, resting their web base directly on the sleeper " " " It is desirable the wood should be hard, to prevent the rail from sinking into the sleeper. What are termed soft woods will not long sustain this service, and what is wanted in a sleeper is durability with sufficient density to bear the action of the rail."—Jervis' Railway Property, p. 123.



lows, therefore, that the erection of such structures is inexcusable except in those instances, not so frequent as may be supposed, where the resources of a company render it unavoidable.

The injury that may be done to a company's rolling stock and machinery by the use of inferior lubricants well illustrate the folly of buying material of inferior quality. The difference in the first cost between that which is good and that which is not is so marked as to secure in many cases the purchase of the latter article. When this is so the direct charge upon the books and in the accounts for lubricants is greatly reduced.

This reduction, very likely, excites the admiration and astonishment of the directors, and is the wonder of all who do not fully understand the process by which it is brought about. The actual cost of the lubricant to the company is never known; comparisons exhibit an increased consumption perhaps, nothing more. The price paid is much less; the destruction engendered by the use of the poor quality appears in the returns under other headings which seemingly have no connection with it. It appears in the disbursements for repairs and renewals of equipment, for new axles, brasses and other parts of the machinery affected. It will also be apparent in all the accounts incident to the wrecking of trains, such as repairs of equipment, disbursements for people killed and injured, for losses, damages and for the service of lawyers. Nor does the increased cost end here; it may be traced step by step through all the labyrinths of the service; it is discoverable in the stoppage of trains; in the diminished usefulness of the plant; in the wages of unemployed men, and in the myriad of expenses incident to the detention of business. All such expenditures may be said to follow in the train of hot journal boxes and broken axles, and these disasters are too often preceded by the purchase and use of unfit lubricants.

In considering the cost of car and locomotive wheels, axles, frames, springs, bolts, nuts, and kindred appliances, we find the relative cost between the good and the bad article is not alone manifest in the price paid for the article itself. It will be discovered that the use of the inferior article materially swells the disbursement accounts for deaths and injuries from accidents, for losses and damages and all the multitudinous expenditures enumerated above in connection with the use of inferior lubricants, including the cost of repairing tracks torn up by derailed trains, the interruption of business and its manifold losses, the swelling of the account for wages, and finally the cost of repairing the injured equipment.

## General Railroad News.

### MEETINGS AND ANNOUNCEMENTS.

#### Meetings.

Meetings will be held as follows:  
*Union Pacific*, annual meeting, at the office, No. 78 Broadway, New York, March 10, at 10 a. m. Transfer books close Feb. 28.  
*Grand Rapids & Indiana*, annual meeting, at the office in Grand Rapids, Mich., March 3.  
*Springfield & Western Missouri*, annual meeting, at the office in Springfield, Mo., March 2.  
*Illinois Central*, annual meeting, at the office in Chicago, May 26.

#### Dividends.

Dividends have been declared as follows:  
*Chicago & Alton*, 3% per cent. on preferred and 3 per cent. on common stock, half-yearly, payable March 1.  
*Railroad Equipment Co.*, of New York, 3% per cent., quarterly, payable March 1.

#### Foreclosure Sales.

The *New Jersey Midland* road was sold in Jersey City, N. J., Feb. 21, under foreclosure of mortgage, and bought for \$2,500,000 by Mr. Charles Parsons, for account of the first-mortgage bondholders. It is understood that arrangements were made previous to the sale by which the holders of the subordinate securities are to be allowed to join in the reorganization, and also for the old labor claims, so that the appeals from the decree of foreclosure will be withdrawn. The road is 71 miles long, from Marion Junction, N. J., to the New York line at Unionville, and is extended thence to Middletown, N. Y., 14 miles, by the leased Middletown, Unionville & Water Gap road. Nothing is yet definitely known as to the final arrangements for the reorganization.  
The *Miami Valley* road is to be sold at Lebanon, O., March 20, under foreclosure of mortgage. No track is laid except a short piece near Cincinnati, but the road is graded, the bridge complete, and the ties provided for 36 miles from Cincinnati northeast toward Columbus. The road is intended to be part of a narrow-gauge line from Cincinnati to Columbus.

#### National Association General Passenger and Ticket Agents.

The following notice of the annual meeting of this Association is issued by the Secretary, Mr. A. J. Smith:  
"The second annual meeting of the Association will be held in Cincinnati, at the Grand Hotel, commencing Tuesday, March 16, at 11 o'clock a. m."

#### EXTRACT FROM SECTION 16 OF THE BY-LAWS.

"The making of passenger rates shall be the business of the Association for the first two days of its session. The rules shall not be suspended to change this order of business, except by unanimous consent."

"Blank credentials will be furnished by the Secretary at the meeting."  
"If you have not previously furnished the Secretary with copies of your Local Tariff, you will confer a favor by doing so at once."

#### Southwestern Railway Association.

It is stated that the Chicago, Rock Island & Pacific Company has given notice of withdrawal from this Association, on the ground that the other companies were not keeping their agreements, were cutting rates and paying commissions on competitive business. Ninety days' notice has to be given.

### ELECTIONS AND APPOINTMENTS.

*Atchison, Topeka & Santa Fe*.—The following circular from General Auditor John P. Whitehead is dated Feb. 14:  
"Hereafter drafts for balances due to this company will be drawn by Mr. E. Young, Auditor, in favor of Mr. Edward Wilder, Treasurer, Topeka."

"Drafts for balances due from this company should be drawn on the Treasurer, as heretofore."  
"Claims for freight overcharges, and for loss or damage, should be sent to the General Freight Agent."

"All other bills against this company should be sent to the Auditor, at Topeka."

*Boston & Albany*.—The Massachusetts Legislature on Feb. 17 elected the following state directors in this company: Joseph H. Chadwick, Boston; Jarvis N. Dunham, Pittsfield; John Kinsman, Salem. Messrs Chadwick and Dunham are re-elected; Mr. Kinsman succeeds C. L. Wood, of New Bedford.

*Burlington, Cedar Rapids & Northern*.—At the annual meeting in Cedar Rapids, Feb. 24, the following directors were chosen: John W. Dewey, Des Moines, Ia.; J. W. Blythe, J. C. Peaslee, Joshua Tracy, Burlington, Ia.; C. Lynde, Rock Island, Ill.; John I. Blair, Blairtown, N. J.; Benjamin Brewster, W. H. Nichols, Fred. Taylor, Francis S. Tows, E. F. Winslow, New York; Charles Bard, Norwich, Conn.; M. S. Bowles, Boston. Messrs. Blythe, Dewey, Lynde and Peaslee are new directors.

*Cleveland, Mt. Vernon & Delaware*.—At the annual meeting in Mt. Vernon, O., Feb. 25, the following directors were chosen: Charles Cooper, Samuel Israel, Mt. Vernon, O.; M. White, Gambier, O.; Wm. M. Orr, Orrville, O.; Isaac Harpster, Millersburg, O.; D. W. Caldwell, Columbus, O.; Thos. D. Messler, Wm. Thaw, Pittsburgh; George D. Roberts, Philadelphia. The board re-elected Thomas D. Messler President.

*Consolidation Coal Co.*—At the annual meeting in Baltimore, Feb. 18, the following were elected: President, Charles F. Mayer; Directors, W. F. Burns, Galloway Cheston, Wm. Donnell, Edward DeRose, W. F. Frick, Robert Garrett, John Gregg, Decatur H. Miller, Baltimore; George B. Warren, Wm. Whitewright, New York. The company owns the Cumberland & Pennsylvania Railroad.

*Delaware, Lackawanna & Western*.—At the annual meeting in New York, Feb. 24, Samuel Sloan was re-elected President, with the following managers: George Bliss, Wm. E. Dodge, E. S. Higgins, E. W. Holbrook, Wilson G. Hunt, Percy R. Pyne, Moses Taylor, New York; S. B. Chittenden, Brooklyn, N. Y.; George Buckley, Southport, Conn.; Benjamin G. Clark, Jersey City, N. J.; Alfred L. Dennis, Newark, N. J.; Wm. Walter Phelps, Teaneck, N. J.; Wm. Ryle, Paterson, N. J.; John I. Blair, Blairtown, N. J. The only new director is Mr. Clark, who succeeds John Brislin, deceased. The board re-elected Frederick F. Chambers, Secretary, and Frederick H. Gibbons, Treasurer, and elected Moses Taylor Fyne Counsel, in place of the late Mr. Brislin.

*Ft. Wayne, Marquette & Southwestern*.—The following officers have been elected for this company: W. J. Holman, President; E. J. Felts, Vice-President; G. W. Diffendorfer, Secretary; D. B. Wade, Treasurer.

*Galveston, Houston & Henderson*.—The new board has elected Mr. Israel Corse, of New York, President.

*Indianapolis & St. Louis*.—At the annual meeting in Indianapolis, Feb. 18, the old board was re-elected, as follows: H. B. Hurlburt, J. H. Devereux, S. Burke, Cleveland, O.; J. N. McCullough, Thomas D. Messler, Pittsburgh; Thomas A. Scott, Philadelphia. The board re-elected H. B. Hurlburt, President; Edward King, Secretary and Treasurer; E. B. McClure, General Superintendent.

*Joliet & Valparaiso*.—The Illinois and Indiana organizations of this name have consolidated, and elected the following officers: President, C. H. Gould, Morris, Ill.; Vice-President, H. N. Marsh, Joliet, Ill.; Secretary, C. H. Weeks, Joliet, Ill.; Treasurer, C. Tatge, Joliet, Ill.; General Manager, E. T. Chase, Joliet, Ill.; General Agent in Indiana, J. H. Ball, Crown Point, Ind.

*Lehigh Coal & Navigation Co.*—At the annual meeting in Philadelphia, Feb. 24, the following were chosen: President, E. W. Clark; Managers, Francis R. Cope, Samuel Dickson, Fisher Hazard, T. Charlton Henry, John Leisner, Edward Lewis, Charles Parrish, Charles Wheeler, George Whitney, James M. Wilcox, Francis C. Yarnall.

*Louisville, New Albany & Chicago*.—Mr. J. E. Reeves has been appointed Superintendent of Transportation with office in Lafayette, Ind. He was formerly on the Louisville, Cincinnati & Lexington.

*Memphis, Kansas & Colorado*.—The Kansas City, Ft. Scott & Gulf having bought this road, the jurisdiction of Mr. T. F. Oakes, General Superintendent, is extended over it, and he announces the following appointments: J. L. Barnes, Assistant Superintendent; J. M. Buckley, Superintendent Track, Bridges and Buildings; J. S. McCrum, Master Mechanic; J. N. Watkins, General Freight Agent; J. E. Lockwood, General Ticket Agent. These are all officers of the Kansas City, Ft. Scott & Gulf, and their offices are at Kansas City, Mo.

Mr. F. P. Weymouth is appointed Train-Master, with office at Cherokee, Kan.

*Mobile & Alabama Grand Trunk*.—This company has been reorganized by the election of the following new directors: John C. Burch, Uniontown, Ala.; W. H. Gardner, Levi W. Lawler, Mobile, Ala.; M. Dreyer, James P. Wallace, New York. The board has elected Levi W. Lawler, President; F. B. Clark, Vice-President.

*Mobile & Montgomery*.—The following circular from General Manager de Funak is dated Feb. 21:

"B. Dunham, Superintendent in charge of the South & North Alabama Railroad, is also appointed Superintendent of the Mobile & Montgomery Railway, with headquarters at Montgomery, Ala."

"The jurisdiction of the heads of departments of the Louisville & Nashville and South & North Alabama railroads, is hereby extended over the Mobile & Montgomery Railway."

"These appointments to take effect on first day of March next."

*New York, West Shore & Buffalo*.—The directors of this company, organized as successor to the New York, West Shore & Chicago, are: John B. Page, Rutland, Vt.; Henry C. Gleason, Shrewsbury, Vt.; Daniel D. Warren, Willis Phelps, Springfield, Mass.; Wallace C. Andrews, Cleveland, O.; Theodore Little, Morristown, N. J.; Henry L. Bennett, H. J. Cullen, James B. Johnson, Henry Morgan, Hiram Pool, Joseph Pool, George S. Studwell, New York.

*Northern of Canada*.—At the annual meeting in Toronto, Ont., Feb. 18, the following directors were chosen: Frank Smith, Wm. Thomson, Noah Barnhart, J. L. Blaikie, George Greig, F. W. Cumberland, Toronto; Sir Henry M. Jackson, Rt. Hon. W. H. Smith, Wm. Ford, London, England. Mr.

John Fiske was chosen to represent the private stockholders, but a protest was entered against his election. The board re-elected Frank Smith President; Sir Henry M. Jackson, Vice-President.

*Pennsylvania Railroad Leased Lines*.—At meetings held in Philadelphia, Feb. 18, the following were chosen: *Columbia & Port Deposit*.—President, Strickland Kneass; Directors, Josiah Bacon, Alexander Biddle, J. N. DuBarry, Joseph Lesley, John M. Kennedy, Wistar Morris, H. M. Phillips, George B. Roberts, Thomas A. Scott, N. Parker Shortridge, Edmund Smith, Jacob Tome. *Philadelphia & Trenton*.—President, Strickland Kneass; Directors, Josiah Bacon, Alexander Biddle, George M. Dorrance, J. N. DuBarry, John M. Kennedy, Wistar Morris, Henry M. Phillips, George B. Roberts, Thomas A. Scott, N. Parker Shortridge, John Price Wetherill. *Western Pennsylvania*.—President, Strickland Kneass; Directors, Josiah Bacon, Wistar Morris, George B. Roberts, Edmund Smith.

*Pensacola*.—It is understood that General Manager W. D. Chipley will retain charge of this road and its Pensacola & Selma extension under the Louisville & Nashville management.

*Peoria, Decatur & Evansville*.—The jurisdiction of the officers of this road is extended over the Grayville & Mattoon road, now operated by this company.

*Pittsburgh & Castle Shannon*.—At the annual meeting in Pittsburgh, Feb. 17, the following were chosen: President, J. H. Oatman; Directors, James M. Bailey, Walter Chess, J. F. Denison, John Jahn, S. Kaufman, C. Kohlmeier, F. D. McKeever, James McMasters, E. Rohrkaste, P. E. Schuchman.

*Pittsburgh, Ft. Wayne & Chicago*.—Mr. C. D. Law has been appointed Road-Master Western Division, in place of Robert Learmouth, resigned.

*Polo, Rockford & Northern*.—This company has been organized at Polo, Ill., with the following officers: President, C. K. Williams; Vice-President, W. W. Burns; Secretary, H. C. Brown; Treasurer, R. G. Shumway.

*Quebec, Montreal, Ottawa & Occidental*.—The Quebec Government has appointed Walter Shanley Government Commissioner for this road. Mr. L. A. Senecal has been appointed General Manager and Mr. Light Engineer of the Eastern Division, Montreal to Quebec.

*Rochester & State Line*.—The New York Supreme Court has appointed Sylvanus J. Macy, of Rochester, N. Y., Receiver, under proceedings for foreclosure of mortgage.

*St. Paul, Minneapolis & Manitoba*.—Mr. John H. Sullivan has been appointed Acting Assistant Superintendent of the St. Vincent Division, in place of W. A. Chatterton, resigned.

*Scioto Valley*.—At the annual meeting recently, the following directors were chosen: George D. Chapman, John G. Mitchell, Henry L. Morrill, Joseph Robinson, Columbus, O.; Harford Toland, London, O.; Marcus Boggs, Chillicothe, O.; George Davis, Portsmouth, O.; George M. Pullman, Chicago; Edward D. Adams, Wm. Adams, Jr., Henry K. McHarg, Horace Porter, Edward L. Winslow, New York. The board elected George D. Chapman, President and General Manager; Henry L. Morrill, Vice-President; James P. Curry, Secretary; Joseph Robinson, Treasurer.

*Southern Minnesota*.—Mr. Louis M. Wyler is appointed Assistant Master Mechanic, and will have charge of the shops at Wells, Minn. He has been for several years an engineer on the road.

*Taylor's Falls & Lake Superior*.—At the annual meeting in Taylor's Falls, Minn., Feb. 17, the following directors were chosen: John Martin, W. D. Washburn, C. C. Washburn, Charles F. Hatch, Levi W. Folsom, George W. Seymour, Oscar Ross. The board elected John Martin President; Levi W. Folsom, Vice-President; G. W. Folsom, Secretary and Treasurer; H. N. Setzer, Attorney.

### PERSONAL.

—Mr. Edwin A. Hill having been spoken of by some papers as attempting to secure passes by fraudulent representation, Mr. J. H. Franklin, Superintendent of the Boston & New York Air Line, informs us that Mr. Hill holds the position of Superintendent's Clerk and Attorney on that road, and is fully authorized to apply for such passes as he may require. The charge originated in a misunderstanding of a hastily written note, which has since been rectified.

—Mr. John W. Morse died in the Asylum at Athens, O., Feb. 18, aged 44 years. He was born in Marietta, O., and at the age of 17 began work under one of the engineers who located the Marietta & Cincinnati road. He afterward went to Indianapolis, and was for many years on the Indianapolis & St. Louis road, rising finally to be Paymaster and General Agent, and also General Manager of the White Line. In 1877 his mind gave way, and he was sent to the St. Vincent Asylum in St. Louis, then taken home to his father's house, and finally sent to the Athens Asylum, where he died.

—Mr. Chauncey C. Kelsey has resigned his position as Paymaster and Auditor of the Indiana, Bloomington & Western, to accept a position on the Chicago & Alton.

—In Utica, N. Y., Feb. 21, Gen. Zenas C. Priest, Superintendent of the Middle Division of the New York Central & Hudson River road, was presented by the engineers on the division with a massive casket, containing 110 pieces of solid sterling silver, valued at over \$500. Engineer Richard made the presentation. Frederick H. Phillips, Dispatcher and Superintendent of Telegraph, who has been with Gen. Priest for nearly 30 years, was presented with a silver service valued at over \$200.

—Mr. Brackstone Baker, for 26 years Secretary of the Great Western Railway Company of Canada (office in London), has resigned his position, the duties of which he has discharged to the satisfaction of all the different parties that have had control of the company.

—Mr. B. W. Lewis, Jr., late First Vice-President of the Wabash, St. Louis & Pacific and previously President of the St. Louis, Kansas City & Northern, was last week presented by a number of citizens of St. Louis with a valuable silver service and an address expressing their high opinion of his ability as a railroad manager and his services to the interests of St. Louis.

### TRAFFIC AND EARNINGS.

#### Pacific Passenger Rates.

The Central Pacific Company, to meet the steamship competition, is now selling emigrant tickets from San Francisco to New York on steamer days at \$35, the former price being \$65. The whole reduction is borne by the two Pacific companies, the lines east of the Missouri declining to prorate, except on conditions which the Central Pacific would not accept.



## Railroad Earnings.

Reports of earnings for various periods have been received as follows:

Year ending Dec. 31:	1879	1878.	Inc. or Dec.	P. c.
Atlanta & Charlotte				
Air Line.....	\$777,298	\$629,278	I.	48,020 7.6
N. Y., Lake Erie & Western.....	10,509,121	15,134,234	I.	1,374,887 9.1
Net earnings.....	4,947,718	4,778,040	I.	169,078 3.5
Month of December:				
Atlanta & Charlotte				
Air Line.....	\$96,815	\$96,423	I.	\$30,392 45.8
N. Y. & New Eng.....	176,000	138,831	I.	37,169 26.7
N. Y., Lake Erie & Western.....	1,398,245	1,205,755	I.	192,490 16.0
Net earnings.....	349,770	305,726	I.	44,544 14.4
Month of January:				
Denver, So. Park & Pacific.....	1880.	1879.		
Kan. City, Lawrence & So.....	\$144,300			
Minn. & St. Louis.....	38,184	\$23,600	I.	\$14,584 60.1
Nash., Chat. & St. L.....	42,938	27,506	I.	15,432 56.1
Net earnings.....	205,634	157,278	I.	48,356 30.7
St. Paul, Minn. & Manitoba.....	100,031	68,113	I.	31,918 46.8
Union Pacific.....	180,239			
First week in February:				
Minn. & St. Louis.....	\$10,401	\$5,538	I.	\$4,863 86.5
Second week in February:				
Chi. & Eastern Ill.....	\$21,741	\$16,002	I.	\$5,739 37.1
Chi., Mil. & St. Paul.....	175,000	108,713	I.	66,287 61.0
Flint & Pere Marq.....	20,700	19,300	I.	1,400 5.4
Mo., Kan. & Texas.....	81,989	45,283	I.	36,706 81.0
St. L., Iron Mt. & So.....	132,800	88,573	I.	44,227 50.0
Week ending Feb. 6:				
Great Western.....	\$72,229	\$89,104	D.	\$17,875 20.1

## Grain Movement.

For the week ending Feb. 14 receipts and shipments of grain of all kinds at the eight reporting northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past seven years:

Year.	Northwestern— Receipts.	Shipments.	Atlantic Receipts.
1874.....	2,467,174	1,096,025	2,222,595
1875.....	1,331,820	782,616	1,350,303
1876.....	2,145,420	1,481,478	1,982,284
1877.....	1,419,072	1,111,317	1,906,159
1878.....	2,376,544	2,004,448	4,151,378
1879.....	2,850,118	1,639,882	4,713,985
1880.....	4,279,151	1,997,067	2,377,028

The receipts at Northwestern markets for the week this year are two-fifths more than in the previous week, and the largest since the first week of November, and larger than ever before in a winter week. The shipments of those markets are also very much larger than in the previous week, and the largest since November. About 70 per cent. both of receipts and shipments were corn, wheat shipments continuing light. The receipts at Atlantic ports are 29 per cent. greater than in the preceding week, but, with that exception, they are the smallest of the year, and are hardly more than one-half of the receipts of the corresponding week of last year. These receipts, too, were nearly three-fourths corn.

Of the receipts at Northwestern markets, Chicago had 33.2 per cent., St. Louis 26.3, Toledo 15.8, Peoria 11.5, Milwaukee 6.8, Cleveland 4.3, and Detroit 2.1 per cent.

Of the receipts at Atlantic ports New York had 35.8 per cent., Philadelphia 22.3, New Orleans 19.9, Boston 11, Baltimore 9.7, Portland 0.8, and Montreal 0.5 per cent. New York's receipts are the largest for four weeks, Philadelphia's the largest since October, Baltimore the smallest since July, 1877. New Orleans has had larger receipts two weeks this year, but very seldom in previous years.

The exports of grain from the seven Atlantic ports for each of the four weeks ending Feb. 18 were:

	Feb. 18.	Feb. 11.	Feb. 4.	Jan. 28.
Flour, bbls.....	73,448	44,905	42,076	95,179
Grain, bush.....	2,765,100	2,256,081	2,344,910	3,053,631

The wheat exports in these four weeks have been greater than the wheat receipts of these ports for the past seven weeks.

The exports for these last four weeks compared with those for the previous four weeks were:

	Feb. 18.	Jan. 21.	Inc. or Dec.	P. c.
Flour, bbls.....	255,998	367,209	Dec.	111,541 30.3
Grain, bush.....	10,419,722	10,149,431	Inc.	270,291 2.7

Wheat exports were nearly one third larger in the last four weeks than in the previous four weeks, and the "visible supply" of this grain has been growing less.

The exports of the eight weeks ending Feb. 25, compared with those of the corresponding eight weeks last year were:

	1880.	1879.	Inc. or Dec.	P. c.
Flour, bbls.....	622,877	488,479	Inc.	134,398 27.3
Grain, bush.....	20,569,153	20,677,428	Dec.	108,275 0.5

There is thus very little difference between the exports this winter and last, and including flour there has been an increase this year, though last winter exports were larger than ever before at that season. Wheat exports, however, have been 16 per cent. less this year, and the balance has been made by an increase of 17½ per cent. in corn exports.

## Coal Movement.

Anthracite coal tonnage for the week ending Feb. 14 was: 1880, 875,172; 1879, 880,801; decrease, 5,629 tons, or 1.5 per cent.

Semi-bituminous tonnage reported for the week were 62,520 tons.

Coal tonnages for January not heretofore reported are as follows:

	1880.	1879.	Inc. or Dec.	P. c.
East Broad Top.....	3,999	5,614	D.	1,615 28.8
Bellefonte & Snow Shoe.....	6,197	3,036	I.	3,161 105.3
Allegheny Region, Pa. R.R.....	23,119	12,581	I.	10,538 83.5
Penn. and Westmoreland.....	75,361	53,298	I.	22,063 41.4
West. Penn. R.R.....	13,011	15,853	D.	2,841 17.9
Southwest Penn. R.R.....	5,716	2,718	I.	2,998 11.1
Pittsburgh Region, Pa. R.R.....	33,505	32,589	I.	916 2.8

Coke:  
Allegheny Region, Pa. R.R. 5,011 4,347 I. 664 17.3  
Penn. and Westmoreland..... 9,321 6,299 I. 3,022 48.0  
West. Penn. R.R..... 7,324 8,115 D. 791 9.8  
Southwest Penn. R.R..... 58,200 71,708 D. 13,448 23.2  
Pittsburgh Region, Pa. R.R. 60,244 13,103 I. 47,141 359.9

It is notable that there is a decrease in coke from the Southwest Penn. (Connellsville) Region and an increase from the Pittsburgh Region.

## Chicago Shipments to the East.

Shipments from Chicago under the pool to Eastern points were as follows, during the week ending Feb. 21:

	Flour, bbls.	Grain, tons.	Provisions, tons.	Total tons.
Lake Shore.....	7,493	10,055	1,957	13,211
Michigan Central.....	16,781	7,032	1,352	9,962
Fort Wayne.....	10,162	2,729	2,977	6,712
Pan Handle.....	6,311	728	2,795	4,150
Baltimore & Ohio.....	1,190	2,370	536	3,105
Totals.....	41,957	22,914	9,517	37,140
Previous week.....				33,003

Increase (12.5 per cent.)..... 4,137

## THE SCRAP HEAP.

## Railroad Equipment Notes.

The Indiana Car Co., at Cambridge City, Ind., has taken a contract to build 100 cars for the Chicago, Pekin & Southwestern.

The Westinghouse Lighting Co., of Pittsburgh, has applied for a charter, and purposes manufacturing apparatus for supplying light to cars, boats, buildings, and streets.

The Westinghouse Continuous Brake Co. has found it necessary to establish a large factory of its own in London, England, near the King's Cross Railway Station. Heretofore the company has depended upon the works in Pittsburgh for the supply of certain portions of the brake apparatus, but the business has grown so much abroad that this arrangement was very inconvenient. The chief London office of the company has been transferred from Westminster to King's Cross for the more convenient conduct of business.

During the past year the Lehigh Valley shops, at Packer-ton, Pa., turned out 1,129 box cars, 255 coal cars, and 145 mine cars, besides keeping the company's cars in repair.

The Harrisburg Car Manufacturing Co., at Harrisburg, Pa., has an additional order from the New York Central & Hudson River road for 1,025 box cars. The works employ 900 men.

The Manchester Locomotive Works, at Manchester, N. H., have been obliged to run extra time.

Bowers, Dure & Co., in Wilmington, Del., are making a lot of cars for a road in Florida, some street cars for Philadelphia, and the iron-work and trucks for the car-equipment of a road in Brazil.

The Terre Haute Car Works, at Terre Haute, Ind., have taken a contract to build 350 freight cars for the Cairo & Vincennes road.

## Iron and Manufacturing Notes.

The Etna Iron & Steel Works, in Bridgeport, O., are running full double turn in all departments.

The Laclede Rolling Mill, in St. Louis, is running chiefly on light iron rails.

The Helmbach Forge & Rolling Mills, in St. Louis, are running full time, employing 200 men.

McDonald & Brother, in St. Louis, are running their forge and rolling mill full time.

The Tudor Iron Works, in St. Louis, are turning out 20 tons of railroad spikes a day.

The Missouri Furnace Co., in St. Louis, has its furnaces in full blast, making 350 tons of pig iron a day.

The furnace of the Glasgow & Port Washington Coal & Iron Co., in Tuscarawas County, O., is in full blast.

The name of the Ft. Pitt Steel Works, at Demmler, near Pittsburgh, has been changed to the Crown Steel Works.

The Sandusky & Chicago Rolling Mill Co. has been organized at Sandusky, O., with \$30,000 capital.

The Cambria Iron Co., at Johnstown, Pa., is building another blast-furnace to make Bessemer pig iron.

The Kittanning (Pa.) Iron Co. expects to start up its blast-furnace about April 1, and the rolling mill soon after.

Cold Spring Furnace, on the Hudson River, in Putnam County, N. Y., has been sold to a company represented by J. Wesley Pullman, of Philadelphia. It is to be rebuilt and supplied with improved machinery.

The corporate name of the Vulcan Iron Works, St. Louis, has been changed to the Vulcan Steel Co. The present organization is as follows: President, D. K. Ferguson; Vice-President and General Manager, Wm. F. Shinn; Secretary, John C. Lewis; General Superintendent, James M. Duncan; Mechanical Engineer, John Stevenson, Jr.; Superintendent of Bessemer works, George Jenkins; Superintendent of furnaces, George Froeschner; Master Mechanic, John McKenna.

The Akron Steam Forge Co., at Akron, O., has work on hand which keeps its shop fully employed. The Forge makes axles, shafting, bridge irons and all sorts of wrought shape work.

The Steubenville Iron Co. has its Stony Hollow Furnace, near Steubenville, O., in full blast.

The Diamond State Iron Co., at Wilmington, Del., has both its rolling mills fully employed, chiefly on railroad track supplies.

## Bridge Notes.

Mr. G. M. Rusling, of Jersey City, N. J., Eastern Agent for the Morse Bridge Co., of Youngstown, O., is putting up two iron bridges on the Warwick Valley Extension, which were built at the Morse Works.

Rust & Co., of Chicago, have the following bridge work on hand and under contract: For the Chicago & North-western, one wrought-iron span, 200 ft., for the bridge over the Mississippi, at Clinton; one wrought-iron draw, 206 ft. long, with iron turning table, across the Minnesota River at New Ulm. For Chicago, Rock Island & Pacific, one wrought-iron span, 150 ft., for the bridge over the Mississippi at Rock Island. For the Hot Springs Railway, two wrought-iron spans, one 125 ft. and one 80 ft. long. For the Central Branch, Union Pacific, four combination spans. For the Missouri Pacific, materials for renewal of 17 spans. The firm is also making a casting-house roof for the Joseph H. Brown Iron & Steel Co.; a stone-planing machine for Edwin Walker, Lemont, Ill., and 2,000 car-axes.

Prices of Rails.

Steel rails are firm with little or no change in prices, which are quoted at \$83 to \$85 per ton at mill. The demand is heavy and the mills are likely to be kept busy.

Iron rails have been quiet with few sales for the past week. The mills are nearly all busy on orders, however, and holders are firm. Quotations are \$67.50 to \$70 per ton at mill for heavy rails, and as high as \$77.50 for light sections.

Old iron rails show a slight decline and the market is easier. Philadelphia quotations are \$42.50 to \$44 per ton, with no demand for large lots.

Railroad spikes remain unchanged. Pittsburgh prices are 4½ cents per pound, with makers generally full of orders.

## Prices of Old Material.

Pittsburgh quotations for old iron and steel are as follows, the market generally being reported quiet: Old car-wheels, very scarce, \$41 to \$45 per ton, gross; machinery metal, \$28 to \$30 per ton; cast borings, \$18 to \$20 per ton; No. 1 wrought scrap, \$43 to \$45 per ton, net; old car axles, \$48 to \$50 per ton; old car springs, \$42 to \$43 per ton.

In New York some sales of old car wheels are reported at \$45 per ton.

## Wild-Cats.

An Erie coal car which came over the Erie a few days since displayed, nailed on the outside, an immense wild-cat, said to have been killed by a brakeman of the train, near Hawley, on the trip from the coal mines. The cat, which was upward of five feet from nose to tail end, was shot twice, but still vigorous, went for the train-man, when the plucky fellow clubbed the animal to death, breaking out both barrels from the stock and receiving quite severe scratches before he had knocked the entire nine lives out of the savage brute. It is said that train-men running through that sec-

tion always have a gun at hand, and frequently shoot wild game on the passage. The train in question was not—and yet it was—a "wild-cat" train.—*Paterson (N. J.) Press*, Feb. 19.

The engineer values the good opinion of the fireman very highly. He always keeps on the right side of him.—*Rail-roader*.

Going through without change does not suit the sleeping-car porters.—*Louisville Post and News*.

## Proposals for Locomotives and Cars.

Bids will be received at the office of F. Braun, Secretary of the Department of Public Works, at Ottawa, Canada, until July 1, for the equipment for the Canadian Pacific road. Delivery will be made over four years, about the following quantities being required in each year: 20 locomotives; 16 first-class and 20 second-class passenger, 3 baggage and express and postal and smoking cars; 240 box and 100 flat cars; 2 wing-plows, 2 snow-plows, 2 flangers and 40 hand-cars. Delivery is to be made at Ft. William or in Manitoba. All the cars and locomotives must be manufactured in the Dominion of Canada. Drawings, specifications and other information can be had of the Engineer-in-Chief, at Ottawa, after March 15.

## Running Without a Truck.

On the Boston, Concord & Montreal road, a few nights ago, a through-freight conductor noticed a car in his train with forward truck frame gone clear from under the car, which remained in position, held only by the coupling-link and pin. Not being able to find the truck frame he set car out and proceeded. Next day it was found 41 miles back of where its loss was noticed, the train having made two stops and some shifting in that distance.

## Fast Time.

On the Northern New Hampshire road, Feb. 19, 1880, accommodation passenger train No. 15, consisting of engine and three cars, G. W. Barnes, Conductor; A. C. Hurlburt, engineer, run from White River Junction to Concord, distance 69.4 miles, in two hours and three minutes, and made 16 stops, at two of which they waited for two long freights to draw by at each. The first 20 miles of this run is up a continuous grade of from 55 to 65 feet per mile. Allowing 25 minutes for stops (which is none too much), we have 98 minutes to make the run, or an average of about 43 miles per hour for the whole distance. The last 35 miles with eight stops, was made in 55 minutes. Allowing 12 minutes for stops gives us 43 minutes for the run, making the speed 50 miles per hour good. Considering grades and weather, which were against them, this time is pretty hard to beat.

## Cost of Interlocking in England.

At a recent meeting of the Great Eastern Railway Com-m in London the Chairman said, referring to the expenditures on capital account, that they had interlocked 125 of their principal stations within the past few years. In January last they had opened five more, making 130; and they had also about 120 junctions with other lines interlocked. Great stress had been laid by the Board of Trade on interlocking, but it was a most costly operation; for in addition to the heavy expenses of interlocking *per se*, it was generally necessary to rearrange thoroughly the whole of the station interlocked. Some of the stations have cost them between £3,000 and £4,000 for interlocking and rearranging, and complying with the other requirements now made by the Board of Trade; the average cost had been very nearly £2,000 a station. There were nearly 300 stations. He hoped they had now "broken the neck" of that great work, which, however, would have to be proceeded with.

## A Standard Freight Car for the Vanderbilt Roads.

Messrs. Leander Garey, Superintendent of the Car Department; David Hoyt and C. E. Garey, Master Car-Builders of the New York Central & Hudson River; John Kirby, of the Lake Shore & Michigan Southern; John Orton, of the Canada Southern, and Robert Miller, of the Michigan Central, met in New York last week, and, after five days' discussion, finally agreed upon standard and uniform patterns for box, stock and other freight cars, to be adopted on all the roads represented. All new cars built hereafter for these roads will be of the standard pattern.

## Sharp Work.

A party of trackmen under charge of Superintendent Wilson, of the Pittsburgh, Titusville & Buffalo road, started on Sunday of last week to take up third rail from the Union & Titusville Branch of the road. Delayed on the way, they did not begin work at Union until 3 a. m., but they had the 18 miles of rail up and loaded on cars and reached Titusville in time for breakfast at 7 o'clock.

## He Stopped the Car.

Wm. Beury and Capt. H. W. Morgan had occasion to go down to Schuylkill county on business last week, and got off the Lehigh Valley passenger train at Myersville. As they were climbing the mountain at that point, they noticed a freight-car coming down the railroad, without any brakeman on the car. Capt. Morgan took in the danger of the situation at once, and knew if the car was not captured it would collide with a train that was on the track below. He therefore started down the mountain on a run and intercepted the car; he caught hold of the side bars and attempted to mount one of the platforms so as to get at the brake, but the car was going down grade and had gotten under such headway, that it was with difficulty that the captain was able to get on, and he had to run some distance and then bruised his knees badly before he was able to swing himself around to jump on the bumper. As soon as he reached the platform, he applied the brake and stopped the runaway car, which was left standing until taken in charge by the railroad employes. Where the car came from, or how it happened to become detached from the train, our informant could not ascertain, but Capt. Morgan certainly deserves the railroad company's thanks for risking his life in the effort to capture the car. Had the car not been stopped, a serious collision would undoubtedly have occurred when it met the train on the railroad track at a point down the line.—*Shamokin (Pa.) Times*.

## OLD AND NEW ROADS.

Arizona Central.—Work has been begun on this road, which is to run from the Southern Pacific at Maricopa, Arizona, to Prescott, the capital of the territory.

Atlantic & Chicago.—Surveys are to be made for this projected road from Marion, O., to Chicago. A little grading, between Marion and Kenton, was done several years ago.

Atlantic & French Broad Valley.—The Legislature of South Carolina has passed an act chartering a company by this name. It appears to be intended as a reorganization of the Spartanburg & Asheville road.

Bedford, Brownstown & Madison.—The action of the City Council of Madison, Ind., in voting \$50,000 to this road, has been declared illegal by the Superior Court and



the city enjoined from issuing bonds. An appeal to the Supreme Court will be taken.

**Blue Ridge.**—A dispatch from Charleston, S. C., Feb. 19, says: "Both houses of the General Assembly passed the bill to facilitate the completion of the Blue Ridge Railroad, which will supply the missing link in connecting Charleston with the Cincinnati Southern Railroad by way of Knoxville. The first section authorizes county subscriptions to the enterprise. In section three the state agrees to remit all taxes and penalties now due on the road, and all taxes except the school tax, for the next three years, provided the work be begun by Jan. 1, 1881, and be completed in three years. In section five the state pledges its faith to remit all state, county, and municipal taxes, except the school tax, for twenty years consecutively to persons beginning the construction of the road from the present terminus by Jan. 1, 1881, and completing it to Knoxville within three years from that date. Section six defines as one of the conditions of the act that the persons accepting the benefits shall build the road from Walhalla, in the direction of Clayton, Ga., and thence to Knoxville, Tenn., and that when completed they shall never discriminate against the interests of any of the ports of this state, or offer better terms of freight or passage to any other ports or enter into any combination with other roads within or without the state, by which they shall discriminate in favor of any other port over Charleston, and any persons hereafter coming into possession of the road shall take it subject to the terms of this section. The persons owning or operating said road shall not have a right to make any discrimination against Charleston either by rebates or special rates, nor in any other way, nor combine or pool with any other companies to do so. Section 8 authorizes putting as large a mortgage bonded debt as necessary on the road. The bill will certainly be approved by the Governor."

**Boston & Albany and Boston & Providence Consolidation.**—All sorts of rumors have been current about these two companies, the solid basis of fact in which appears to be that negotiations for a consolidation on even terms have been renewed, and that the Providence directors have agreed to submit the matter to the stockholders. On even terms the Providence stock would seem to have the advantage, for the Albany road has paid 8 per cent. dividends steadily, while 6 per cent. has been the most the other company has paid for several years. The Providence stock has been largely in the hands of small holders, but it is reported that certain holders of Albany stock have been buying all they could get and that a good deal has changed hands lately.

The two roads are not parallel lines in any sense, the only business for which there is any competition being that between Boston and New York, for which the Shore line and Springfield routes are, to a small extent, rivals. The point of union is in the Boston terminus. The Boston & Albany has excellent freight accommodations, but will have to spend a large sum for a new passenger depot soon, while the Boston & Providence has one of the finest passenger stations in America, which would be sufficient for the needs of both roads. Their union and the use of their terminal stations jointly would also do away with an extremely troublesome and dangerous grade-crossing, which has long troubled both roads.

**Boston, Clinton, Fitchburg & New Bedford.**—The stockholders of this company have approved the amended lease of the Framingham & Lowell road, and ordered it to be assigned to the Old Colony Company.

**Burlington & Northwestern.**—This company offers to extend its road from Washington, Ia., northwest through Richmond and Iowa, provided the towns on the line will vote a 5 per cent. tax.

**Burlington, Cedar Rapids & Northern.**—It is stated in dispatches from Cedar Rapids, that at the annual meeting held there Feb. 24, the lease of the road to the Chicago Rock Island & Pacific was not ratified. No votes were cast against it, but it failed because a majority of the stock was not voted for it. Only about 15,000 shares out of 55,000 were voted on. The directors who were taken into the board to represent the Rock Island interest were all reelected. Why there should be such a lack of interest in the lease among the stockholders is not apparent, as the lease seems to be very advantageous to them. What further action will be taken is not known.

**Canadian Pacific.**—Bids will be received by F. Braun, Secretary of the Department of Railways and Canals, at Ottawa, Canada, until March 29, for the building of 100 miles of this road west of the Red River of the North. This section extends from a point near the western boundary of Manitoba to the west side of Bird-Tail Valley. Blank forms and all information can be had at the Engineer's office in Ottawa or Winnipeg.

**Central of Georgia.**—The report that this company had withdrawn from the Southern Railway & Steamship Association is denied. No action in that direction has been taken and none will be taken until after the next meeting of the Association.

**Chicago & Hammond.**—This company has been organized to build a railroad from Hammond, Ind., seven miles from South Chicago, through the Village of Hyde Park, into Chicago. The right of way through Hyde Park has been secured.

**Chicago, Burlington & Quincy.**—This company has bought the old Ohio & Mississippi depot grounds at East St. Louis, between the Wabash and the Alton freight houses. The price paid for the property was \$180,000. The terminal business of the Burlington at East St. Louis was done heretofore by the Indianapolis & St. Louis Railroad, but the new purchase secures for it independent terminal facilities at that point.

**Cincinnati & Fayetteville.**—The directors have voted to make this road of standard instead of 3-foot gauge; to extend it eastward to a connection with the Springfield Southern and the Scioto Valley roads, and to secure connections into Cincinnati. They have also voted to change the name to the Cincinnati, Fayetteville, Hillsboro & Huntington Railroad Company.

**Concord.**—In the suit in equity brought by John H. Pearson, a stockholder, to set aside the contracts of this company with the Northern and the Boston, Concord & Montreal Companies, a large amount of testimony has been taken on both sides, and the case adjourned to May 24, when arguments will be heard. Mr. Pearson seeks to set aside the contracts on the ground that they are inequitable, and tend to build up and support the upper roads at the expense of the Concord stockholders.

**Connecticut Western.**—Some time ago, it will be remembered, a number of the bondholders consented to accept preferred stock, the bonds to be held in trust as security for the performance of the contract with the company. Last week a suit was begun by Mr. Nathaniel Niles, of Madison, N. J., a bondholder, to foreclose the mortgage, the suit being for Mr. Niles and such other bondholders as may join with him. The petition asks that the road may be delivered

to the trustee under the mortgage, to be worked by him pending the suit.

**Cumberland & Ohio, Northern Division.**—The Louisville, Cincinnati & Lexington Company, lessee, has let the contract for grading, tracklaying and ballasting this line from Shelbyville, Ky., to Bloomfield, 26 miles, to John M. Juman and John O. Sloan, of Cincinnati, work to be begun at once.

**Delaware, Lackawanna & Western.**—This company had made preparations to build extensive coal docks in Buffalo, N. Y., but, having found it difficult to get the right of way from the New York Central tracks to the new docks, has abandoned the plan for the present. The shipping facilities at Oswego will be increased and all the business done from that port instead of a part from Buffalo, as proposed.

**Detroit, Lansing & Northern.**—On the extension of the Stanton Branch track is now laid from the late terminus at Blanchard, Mich., north by west eight miles, leaving only about five more to complete the road to Big Rapids. It is expected to reach that place in March.

**Evansville, Washington & Worthington.**—A plan is under discussion for continuing the line of this projected road to Indianapolis. Several meetings have been held, and surveys are to be made.

**Gainesville, Ocala & Charlotte Harbor.**—The engineers of this company have completed a preliminary survey, and are now making the necessary maps. They expect soon to begin a survey for a line from Gainesville, Fla., to Palatka.

**Grand Southern.**—The contractors for this road now promise that the whole line of 81 miles, from St. John, N. B., to St. Stephen shall be finished this year. They expect to have a large force at work very soon.

**Guthrie & Northwestern.**—This company is organized to build a branch line about 15 miles long, from Guthrie station on the Chicago, Rock Island & Pacific road northwest to Guthrie Centre, Ia. It will be worked by the Rock Island Company.

**James River & Kanawha Canal.**—The City Council of Richmond, Va., has resolved to surrender to this company the \$200,000 bonds which it owns, as a sort of bonus in aid of the building of a railroad from Richmond to Buchanan along the line of the canal.

**Kansas City, Fort Scott & Gulf.**—The following circular announces a change already noted. It is issued by General Ticket Agent J. E. Lockwood: "This company having purchased and taken possession of the Memphis, Kansas & Colorado Railroad, I urgently request such lines as have not on sale Parsons tickets reading via Kansas City and that line, to kindly place on sale at the earliest date practicable, tickets to Parsons, Kansas, with but one coupon from Kansas City, reading Kansas City, Fort Scott & Gulf Railroad, Kansas City to destination."

**Lehigh Valley.**—This company is building a new line for about five miles of the Beaver Meadow Branch, between Black Creek Junction and Penn Haven. The new road is on the south side of Quakake Creek, and will have grades of only 50 feet to the mile, the old line having as much as 96 feet. The new line will also avoid four bridges which now have to be maintained.

**Macon & Brunswick.**—The contract for the lease of this road to the company headed by Mr. R. T. Wilson, President of the East Tennessee, Virginia & Georgia, has been finally closed. Concerning the negotiations, which were concluded in New York, the Atlanta Constitution says: "The Governor adhered to the position he assumed at first, but after full discussion, an agreement was reached. There was not so much desire of a warranty deed as a distaste among the capitalists to buy any sort of lawsuit from the bondholders. The over-importance given to the matter in Georgia drove two or three of Wilson's friends out of the company, as they were afraid of disappointing public expectations. There is no doubt that the lease was hopelessly gone until the Governor reached New York and appeared before the parties at headquarters. He said to them that the honor of Georgia would be maintained and the integrity of her contracts preserved, without any special guarantee. The company exchanged from its former complexion, but is just as strong, and will be controlled by Wilson and McGhee. They will be in Atlanta to sign the papers on Wednesday or Thursday."

Mr. Kimball is here and has a company, composed of very strong men, ready and anxious to take the road. He made a formal tender of the first \$10,000 to the Governor, which the latter declined until Wilson's party had time to decide on the open questions between them and the state.

**Massachusetts Central.**—The trustees now hold practically all of the old bonds. They have the option of buying them at any time before July 1 at about one-third their face value, and it is understood that they will do so. Arrangements have been made to place \$3,500,000 new bonds, of which \$500,000 will be used to retire the old bonds, leaving \$3,000,000 to complete the road.

**Memphis & Charleston.**—The city of Charleston, S. C., has decided to sell the stock in this road which it has long held. Notice is given that sealed bids will be received by Wm. A. Courtenay, Mayor of Charleston, at his office, until March 10, for the purchase of the 15,150 shares owned by the city. The right to decline all bids in case no satisfactory offer is made, is reserved.

**Milwaukee, Lake Shore & Western.**—Track is now laid to Carbonate, Wis., seven miles beyond the late terminus at Tigerton and 183 miles from Milwaukee. Work is progressing rapidly toward Lake Goulet, which will probably be reached next month. It is said that the company has decided to build at once 50 miles of road from Lake Goulet westward to Colby on the Wisconsin Central, and later in the year an extension of 50 miles northward from the same place.

**Missouri, Kansas & Texas.**—The Osage Division, extending from Holden, Mo., on the Missouri Pacific, to Paola, Kan., 53 miles, has been leased to the Missouri Pacific Company. It serves to connect that company's road with the St. Louis, Kansas & Arizona line, which it is building out into Kansas. It had no direct connection with the Missouri, Kansas & Texas main line.

**Mobile & Ohio.**—This company has offered to compromise its difference with the state of Mississippi by the payment of \$240,000, in 15 yearly installments. The proposition is now before the Legislature. The claim of the state, with interest, now amounts to over \$500,000, but the company insists that it was paid during the war.

It is stated that arrangements have been made to sell bonds enough to pay for the building of a branch or extension from a point near Columbus, Ky., north to a point opposite Cairo. It is not intended to break the present St. Louis connection over the Iron Mountain road, but to make a new connection with the Cairo & Vincennes. About 20

miles of new road will be needed. The company has wanted a line to Cairo for a long time.

**Nashville, Chattanooga & St. Louis.**—This company makes the following statement for January:

Gross earnings	\$205,634
Expenses (50.17 per cent.)	105,003
Net earnings	100,631
Taxes, proportion for the month	\$2,790
Interest	39,510
Dividend	16,416
	55,676

Net surplus for the month.....\$44,355

If the earnings of the leased St. Louis & Southeastern road were included in the statement, it would show a net surplus over all fixed charges equal to the month's proportion of a dividend of 13 per cent. a year on the stock.

A covered wooden bridge of 125 ft. span, near Chattanooga, was burned Feb. 20, having caught fire from locomotive sparks. A large force was at once put on to build a temporary trestle bridge. An iron bridge will be put up in place of the wooden one destroyed.

**Natchez, Jackson & Columbus.**—This company has received a proposal from contractors for the completion of the road from its present terminus, at Martin, Miss., to Jackson, on very advantageous terms. It is thought that it will be accepted.

**New York Central & Hudson River.**—A dispatch from Albany, Feb. 24, says: "On May 17, 1853, the association which subsequently became the New York Central Railroad Company, and now has the Hudson River Railroad added, entered into an agreement with the Buffalo & Lockport Railroad Company by which the latter was to allow its road to be taken as part of the Central under the consolidation act. There was some question about the titles of the Buffalo & Lockport Company to the property controlled by it, and the agreement provided that these were to be perfected before the consolidation should become complete. Trustees were appointed to examine into the matter, and then, failing to perfect the titles, the road was thrown into the hands of a Receiver. The Central Company then commenced suit. This morning, in the Special Term, S. O. Shepard said that all the titles were now perfected, and moved that an order of discontinuance be entered in the suit. Sidney Fairchild, for the Central road, opposed the motion, saying that the titles of all the property of the Buffalo & Lockport Company were not perfected, and the action should be tried in order to learn all the facts. Justice Westbrook took the papers."

**New York, Lake Erie & Western.**—The following statement for the quarter ending Dec. 31, the first quarter of the current fiscal year, is published:

	1879.	1878.	Increase.	P. c.
Gross earnings	\$4,627,777.06	\$4,060,678.71	\$567,098.35	14.0
Expenses	3,004,089.32	2,617,384.28	386,705.04	14.5
Net earnings	\$1,623,687.74	\$1,443,294.43	\$180,393.31	12.8
Per cent. of exps.	64.91	64.45	0.46	0.7

It is rumored that one of the conditions of the agreement with the New York Central is the withdrawal of this company from what is known as the Erie & Chicago line, reaching Chicago from Salamanca over the Atlantic & Great Western and the Pittsburgh, Ft. Wayne & Chicago roads.

**New York, New Haven & Hartford.**—The irrepressible Mr. Goodwin, of East Hartford, has applied to the Connecticut Superior Court for an injunction to restrain this company from issuing free passes to members of the Legislature. The case is to be heard next week.

**New York, West Shore & Buffalo.**—This company has been organized as successor to the New York, West Shore & Chicago. The articles of incorporation provide for the main line from Jersey City to Buffalo, 425 miles, with 75 miles of branches; the capital stock is to be \$50,000,000. As at present constituted, it seems to be chiefly a contractors' company, and not likely to do much, unless more capital is brought in.

**Oakdale.**—The Oakdale Iron Company is building a narrow-gauge road from its furnaces in Roane County, Tenn., to Hunnicut Station on the Cincinnati Southern. The object is to connect with that road, and also to reach some iron and coal lands owned by the company.

**Philadelphia & Atlantic City.**—The trial of Assistant Superintendent Verts for manslaughter, as having caused by his negligence the death of the persons killed in the Clementon collision last August, ended in his acquittal, the Court charging the jury that the state had failed to make out a case against the accused.

**Pittsburgh & Castle Shannon.**—The court has refused the petition to change the Receiver of this road, on the ground that no sufficient cause has been shown for the removal of the present Receiver. The court, however, intimates that the first appointment was made under a misapprehension, and at a time when there was hardly a necessity for such a proceeding, and announces that leave will be given for creditors to bring suits to enforce their claims.

**Port Huron & Northwestern.**—Track is now laid to Carson, Mich., 12 miles northward from the late terminus at Croswell, and 88 miles from Port Huron. Negotiations are pending for aid along the line for a further extension from Carson to Port Austin.

**Rochester & State Line.**—In the foreclosure suit recently begun by the Union Trust Company, the New York Supreme Court has appointed Sylvanus J. Macy Receiver. It is said that all efforts of the local stockholders at a compromise have failed, and that the mortgage will be foreclosed and the road bought in by the Vanderbilt interest.

Since this action was taken, the Attorney General of New York has made application to the Supreme Court to have the proceedings, under which the appointment of a receiver was made, reviewed. It is charged that the appointment was made by collusion between the company and a part of the bondholders, and in order to anticipate a suit which the Attorney General was expected to bring.

**St. Croix Falls & Sault Ste. Marie.**—This company has filed articles of incorporation in Wisconsin. The capital stock is to be \$4,000,000. The incorporators are Ex-Gov. Washburn, Franklin Steele, Senator Van Steenwick, Chas. F. Hatch, John Martin, Wm. Washburn and J. S. Baker. The road will run from St. Croix Falls, Wis., to Superior City, through the counties of Polk, Burnett and Douglas, with a branch to Montreal River.

**St. Paul & Sioux City.**—The authorized capital account of this company is to be increased by an amount equal to \$10,000 common stock, \$10,000 preferred stock and \$10,000 bonds per mile of the roads lately acquired—the Omaha & Northern Nebraska, the Hudson & River Falls and the St. Paul, Stillwater & Taylor's Falls.

The reported consolidation with the Chicago, St. Paul & Minneapolis is not confirmed, but it is not denied that negotiations are in progress.



Notice is given to holders of old preferred stock of this company that on and after March 1, 1880, dividends will cease on the stocks known as fourth series and consolidated preferred. Certificates properly indorsed, in blank, for transfer, will be redeemed at par and accrued dividend, on presentation to B. G. Mitchell, Assistant Secretary, at the Metropolitan National Bank, New York, or at the office of the company, in St. Paul.

The New York Tribune of Feb. 24 says: "A company of prominent railroad men has secured control of the St. Paul & Sioux City Railroad. This syndicate is composed of R. P. Flower, David Dows, Josiah M. Fiske, Heber R. Bishop, Benjamin Brewster, William Schley, George I. Seney, Charles J. Osborn, Henry Seibert, Dennis C. Willcox, M. L. Sykes and Samuel Hawk, of New York; Philatus Sawyer, Wisconsin; H. H. Porter and William H. Ferry, Chicago; R. R. Cable and P. L. Cable, Rock Island; E. F. Drake, A. H. Wilder and J. L. Merriam, St. Paul; and Jacob Humbird, Cumberland, Md. These persons have bought 40,000 shares, a controlling interest, in the St. Paul & Sioux City road, for which they have paid, for the common stock 40 and for the preferred stock 80. They own, at the same time, a controlling interest in the Chicago, St. Paul & Minneapolis and the North Wisconsin railroads. From these three companies it is proposed to form a new corporation, which will be called the St. Paul, Omaha & Chicago Railroad Company. The terms of the consolidation have not yet been agreed upon, but it is said by prominent members of the syndicate that there is no doubt of the union of the three companies. The preliminary arrangements have been signed, and the conclusion of the proposed union is simply a matter of detail. Several members of the syndicate will leave New York on Friday for the purpose of inspecting the lines."

**Southern Pacific.**—The grading is now progressing rapidly on this road and has nearly reached the old town of Tucson, 93 miles beyond the summer terminus at Casa Grande. Track is laid for 23 miles beyond Casa Grande. A little east of that place the line leaves the Gila River, which it had followed all the way from Yuma, and turns southeast, up the valley of a branch of the river, and will follow a general southeast course to Tucson.

**Texas & Pacific.**—At the opening of bids for the purchase of \$5,000,000 bonds to be issued for the construction of the extension from Ft. Worth to El Paso, it was found that they amounted to nearly three times the amount of bonds offered. Allotments have not yet been made.

A St. Louis dispatch says that the Construction Company has let contracts for the building of a section of 50 miles from Weatherford, Tex., west.

**Union Pacific.**—The United States Circuit Court in New York has denied a motion to remand to the New York Supreme Court the suit of this company against Henry S. McComb, which is one of the Credit Mobilier cases.

**Utah & Northern.**—It is announced that this company has bought rails for 130 miles of track, and expects to lay them all during the coming season.

**Venice & Carondelet.**—This company has filed articles of incorporation for a railroad from Venice, Ill., around East St. Louis to East Carondelet. Both termini are on the Mississippi, one above and the other below East St. Louis, and the plan seems to be to build a belt road to connect all roads which approach St. Louis east of the river.

**Vicksburg, Shreveport & Pacific.**—Surveys are being made for the extension of this road from Monroe, La., to Shreveport.

**Washington City, Virginia Midland & Great Southern.**—In Alexandria, last week, the Virginia Circuit Court granted a final decree of foreclosure and sale under the mortgages. The decree forecloses all the mortgages except that of May 1, 1873, and grants judgment for the interest due under that. It orders that the sale be made by John S. Barbour as Commissioner, and that it be by public auction, after 60 days' notice.

**West Jersey.**—It is proposed to extend the Swedesboro Branch from Swedesboro, N. J., south to Woodstown, about eight miles. It is understood that the company will build the extension if the people on the line will subscribe enough to pay for the right of way and grading.

**Western North Carolina.**—The Governor of North Carolina has decided to call an extra session of the Legislature to consider the proposal for the purchase of this road. The Governor makes the following statement of the proposition:

"The proposition of Mr. Best and his associates as perfected, briefly stated, is this: The state, through its proper commissioners, is to make a deed, without any warranty of title, to Mr. Best and his associates for the state's interest in the Western North Carolina Railroad. This deed is not to be delivered to the purchasers until the railroad is completed both to Ducktown and to Paint Rock, nor until all the other stipulations of their contract are performed; but until then it is to be held in trust by the United States Trust Company, of New York, upon the following conditions:

"If the road is completed as agreed upon in the contract, and all the other conditions therein stipulated are faithfully performed, the deed is to be delivered to the purchasers; but if they fail in any one the grant becomes void, the property reverts to the state, the United States Trust Co. is to re-deliver to the state the deed and all papers pertaining thereto, and the state re-enters at once into the possession, control and ownership of the entire property.

"Before the delivery of this deed to the United States Trust Company, the purchasers are to enter into a contract binding themselves, their executors, administrators and assigns to build the branch railroad to Paint Rock by July 1, 1881, the Ducktown line by Jan. 1, 1885. From the day the act authorizing the sale is ratified, the purchasers are to pay all the interest on the \$850,000 mortgage bonds which the state is now paying, and are in due time to take up and cancel the said bonds.

"The purchasers are to have the right to mortgage any mile of the said Western North Carolina Railroad that has been completed and is in operation, to the extent of \$15,000 per mile, but the aggregate amount of these mortgage bonds shall include the \$850,000 heretofore issued, until these latter bonds shall be canceled. Of these bonds issued by the purchaser they are to deliver to the State Treasury \$550,000 to reimburse the state for its expenditures made since the purchase of the road in 1875. The mortgage to be made by the purchasers is to contain a condition that it cannot be foreclosed until the railroad is completed both to Paint Rock and to Murphy, in Cherokee County, and this condition is to be explicitly stated in the body of all the mortgage bonds, so that no default in the payment of interest or anything else can work a sale of the railroad until it is completed. If the parties shall fail in their contract, the remedy is two-fold. First, the state has the legal right and the ability to enforce its performance. But, if from any cause it shall become impracticable or inexpedient to enforce its performance, the railroad again becomes the property of the state, which takes that part from Salisbury to Paint Rock with all the

rolling stock and equipment free and discharged of all mortgage, lien or encumbrance of any and every kind, in favor of the purchasers or any other person or corporation except the \$850,000 now on it, and the actual expenditures made by the purchasers in the construction, repair and equipment of the said road, not to exceed in the aggregate \$850,000. But this lien or indebtedness shall not be due or in any manner collectable until the completion of the Ducktown line to Murphy.

"So that whatever money the purchaser shall have expended upon the work will be absolutely forfeited unless the road shall be completed both to Murphy and to Paint Rock. If, therefore, the purchasers build the Paint Rock Branch and stop there, the state will take possession of the railroad, which is reasonably estimated to be worth \$3,000,000. The only incumbrance upon it will be the \$850,000 which is now a lien upon it, and which will be due in 1890, and the amount expended not to exceed \$850,000, which latter amount will not be due until the Ducktown line is completed to Murphy; and if the road shall never be completed to Murphy this amount will never be due. It will be seen, therefore, that unless the purchasers build the road to Ducktown, the state will get a completed road, said to be worth \$3,000,000 cash, for \$850,000.

"That proposition also contains a provision that the said purchasers, in matter of transportation, shall not discriminate against any North Carolina city or town, or against any one North Carolina city or town over another. The state is to hire to the purchasers—not give them—five hundred convicts, for which they are to pay to the state \$125 each per year, amounting in the aggregate to \$62,500 annually for five years, or \$312,500 in all."

**Wilmington & Northern.**—The grading of the French Creek Branch is now nearly done, and track has been laid from the junction with the main line near Springfield, Pa., to St. Mary, about three miles. The bridge near that place is done and the branch will soon be ready.

**Wisconsin Central.**—The bridge over Fox River on this company's branch to Appleton, Wis., is finished and the track all laid. The branch is six miles long, from Menasha to Appleton, and will be opened for business in a few days.

## ANNUAL REPORTS.

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## Northern Central.

This company owns a line from Baltimore northward to Sunbury, Pa., 138 miles, with an extension of 4 miles in Baltimore to the Canton wharves, and a branch from Relay House to Green Spring, Md., 9 miles, making 151 miles owned. It leases the Shamokin Valley & Pottsville road, from Sunbury to Mt. Carmel, Pa., 28 miles; the Williamsport & Elmira road, 78 miles; the Chemung road, 52 miles, and the Elmira, Jefferson & Canandaigua, 47 miles, the three last named forming a line from Williamsport, Pa., to Canandaigua, N. Y., 147 miles. Its trains use the Philadelphia & Erie track from Sunbury to Williamsport, 40 miles, to offset which the Philadelphia & Erie trains run on its track from Marysville to Sunbury, 47 miles. The total mileage owned and leased is 326 miles, besides 40 miles used.

The report is for the year ending Dec. 31, 1879.

Stock (\$38,001 per mile).....	\$5,842,000.00
Maryland state loan, irredeemable, 6 per cent.....	1,500,000
Sinking fund 6 per cent. bonds.....	1,400,000
Mortgage 6 per cent. bonds.....	1,125,000
Six per cent. gold bonds of 1890.....	2,804,000
Consolidated general mortgage 6 per cent. bonds.....	4,525,000
Second general mortgage 5 per cent. bonds.....	3,000,000
Second general mortgage 6 per cent. bonds.....	1,000,000

Total funded debt (\$102,285 per mile).....	15,445,000.00
Bills payable, pay-rolls, vouchers, etc.....	704,532.55
Accrued interest and rentals.....	406,941.25

Total.....	\$22,400,473.80
Road and property (\$115,246 per mile).....	\$17,402,157.77
Stocks of leased lines, cost.....	3,048,680.82
Cash and cash assets.....	743,332.07
Supplies.....	294,140.63
Bonds and stocks.....	745,777.08
Trustees of sinking fund.....	159,197.26
Profit and loss.....	97,186.07

Cost of property decreased \$3,000. The bonded debt increased \$52,000 during the year, the increase being in consolidated general mortgage bonds.

The earnings for the year were as follows:

	1879.	1878.	Inc. or Dec.	P. c.
Passengers.....	\$627,923.83	\$657,005.81	D.	\$29,078.98 4.4
Freight.....	3,272,301.56	2,837,509.44	I.	434,792.12 15.3
Express and mail.....	102,388.40	109,427.40	D.	7,039.00 6.5
Miscellaneous.....	105,332.03	119,424.25	D.	14,092.22 11.8

Total.....	\$4,107,948.82	\$3,723,456.90	I.	\$384,491.92 10.3
Expenses.....	2,801,941.97	2,604,497.21	I.	197,444.76 9.9

Net earnings.....	\$1,246,006.85	\$1,118,959.69	I.	\$127,047.16 11.4
Gross earnings.....	12,601.07	11,421.05	I.	1,179.42 10.3
Net earnings.....	3,822.11	3,432.39	I.	389.72 11.4
Per cent. of exps.....	69.67	69.95	D.	0.28 0.4

The earnings, expenses, etc., of the various divisions were as follows:

	Earnings.	Expenses.	Net earn.
Main Line.....	\$2,809,558.37	\$1,916,624.79	\$892,933.58
Shamokin Div.....	416,501.95	129,757.22	286,744.73
Elmira Div.....	495,303.61	434,034.04	60,269.57
Chemung Div.....	132,573.98	135,257.01	2,683.33
Canandaigua Div.....	246,064.43	239,117.81	6,946.62
Green Spring Branch.....	7,886.78	9,251.30	*1,364.52

\* Deficit.

All lines showed an increase in gross earnings, and an increase in expenses, smaller in proportion, however, than that in earnings.

The income account was as follows:

Gross earnings.....	\$4,107,948.82
Interest and dividends on investments.....	70,563.50
Interest on equipment, leased roads.....	77,776.20
Royalty on coal mined.....	26,055.26
Penn. R. R. Co., contribution for operating Elmira, Chemung and Can. roads.....	159,736.96
Total.....	\$4,442,080.74

Working expenses.....	\$2,801,941.97
Interest paid.....	952,681.74
Rent, Shamokin Valley & Pottsville R. R.....	204,671.40
Rent, Elmira & Williamsport.....	194,261.85
Rent, Chemung R. R.....	37,052.12
Rent, Elmira, Jeff. & Can. road.....	27,477.01
Total.....	4,278,086.09

Surplus for the year.....	\$163,994.65
By return of deposit.....	10,769.58
Receipts from Jay Cooke estate.....	4,399.28
Total.....	\$179,163.51

Debit balance of profit and loss, Jan. 1, 1879.....	276,350.18
Debit balance, Jan. 1, 1880.....	\$97,186.67

Rentals of leased roads include interest paid on equipment to the lessee. A large part of the amount charged as interest on investments is from payments made on rentals of these leased lines, stocks and bonds being owned by the lessee.

The freight traffic for the year was as follows:

	1879.	1878.	Inc. or Dec.	P. c.
Tons carried.....	7,920,866	5,803,371	I.	2,117,495 36.5
Tonnage mileage.....	404,102,761	280,236,742	I.	123,956,019 44.2
Per ton per mile.....	0.810 ct.	1.013 cts.	D.	0.203 ct. 20.1
Receipt.....	0.540 "	0.703 "	D.	0.163 " 23.3
Cost.....	0.270 "	0.310 "	D.	0.040 " 12.6

The increase in tonnage was large on all divisions, and very much of it was due to the increased movement of anthracite coal. The bituminous trade fell off considerably. Apart from coal, there was an increase in general local tonnage, and also in through freight from and to Baltimore.

Coal tonnage of the various lines and branches was as follows:

	1879.	1878.	Inc. or Dec.	P. c.
Main Line.....	1,185,145	871,232	I.	313,913 36.0
Shamokin Division.....	972,875	655,581	I.	317,294 48.4
Elmira & Wmsport.....	595,519	463,029	I.	132,490 46.4
Chemung R. R.....	431,258	437,089	D.	5,828 1.3
Canandaigua R. R.....	351,516	275,061	I.	76,455 27.7
Green Spring Branch.....	7,655	5,302	I.	2,353 40.5

The report says: "The decrease in the bituminous coal tonnage from the Erie Railway and Tioga & Elmira State Line Railroad, destined to points north of Elmira, as compared with the previous year, was 68,865 net tons, the decrease in revenue from this source being \$9,317.16.

"Your attention is particularly directed to the statistics of the freight traffic of your lines, as shown in the foregoing tables. It will be seen that while the tonnage mileage shows the very large increase of 44.3 per cent., the gross receipts, owing to the low rates prevalent during the year, only increased 15.3 per cent. Fortunately, the excellent condition of your property, as a result of the wise expenditures of the past few years, and the thorough efficiency of your service, enabled this largely-increased tonnage to be moved without a corresponding increase of expenses.

"The average receipts from freight on your main line, leased lines and branches were 0.810 cent per ton per mile; the cost per ton per mile was 0.540 cent, which we believe to be unprecedentedly low for a railway with the physical characteristics of yours.

"During 1878 there was moved over your road to Baltimore 14,812,006 bushels of grain, and in 1879 25,812,279 bushels. By means of the additional elevator erected on the old coal pier at Canton, alluded to in last year's report, this large business was handled with reasonable promptness.

"To enable your company to secure its proper share of the tobacco business, a warehouse for the receipt, inspection and storage of tobacco was erected at Canton. This warehouse will have to be enlarged this year, owing to the rapid increase of this class of traffic.

"In the report of last year it was stated that arrangements had been made under which the Elmira & Williamsport 7 per cent. bonds, amounting to \$1,000,000, falling due on Jan. 1, 1880, might, at the option of the holders, be extended for 30 years, at 6 per cent. per annum. The holders of these bonds, with the exception of \$33,000, have availed themselves of this privilege and have had their bonds extended. The \$33,000 of outstanding bonds are being purchased by this company on presentation, and will be extended and the new bonds sold at a profit, thus more than reimbursing your company."

"Your board take pleasure in reporting that your property is in excellent condition. Its road-bed, equipment and all other facilities were never so complete as at present. We believe them to be now quite equal to the standard of other first-class roads. There are now in the tracks of your various roads 32,795 tons of steel rails, leaving but 4,799 tons of iron rails remaining, which will be replaced by steel during the present year. In accordance with the conservative policy heretofore pursued by your company, all items of construction and equipment have, during the past year, been charged to expenses, the purpose being to place the company on a perfectly safe and sound financial basis.

"In conclusion, your board desire to express their appreciation of the zeal and efficiency displayed by the officers and employees in all departments during the past year. They take pleasure also in saying that the reviving business of the country will, in their judgment, justify an increase of their compensation not later than the 1st of April next. The increase in the net revenue during the past year was so slight that the company was not warranted in taking this step at an earlier date. But they desire to convey the assurance that such further action will be taken from time to time as may be justified by the circumstances of the case."

## Illinois Central.

This company owns the Chicago Division from Chicago to Cairo, 364.73 miles, and the Northern Division, from Centralia, Ill., to Dubuque, Ia., 340.77 miles, 705.5 miles owned. It leases and practically owns the Chicago & Springfield road (Springfield Division), from Gilman, Ill., to Springfield, 111.5 miles, and the Kankakee & Southwestern (Chatsworth Division), from Otto, Ill., to Chatsworth, 36.76 miles. It leases in Iowa the Dubuque & Sioux City, 142.89 miles, and the Iowa Falls & Sioux City, 183.60 miles, which together form a line from Dubuque to Sioux City, and the Cedar Falls & Minnesota, 75.58 miles, making 1,255.92 miles worked, of which 853.76 miles are in Illinois, and 402.16 miles in Iowa. Near the close of the year this mileage was increased by extending the Chatsworth Division southwest 18.83 miles, and laying 12 miles of the Kankakee & Western, a branch from near Kempton to the Northern Division near Minonk. These additions were hardly opened for business before the end of the year.

The latest report is for the year ending Dec. 31, 1879.

The equipment consists of 212 engines; 81 passenger, 18 sleeping, 10 smoking, 12 baggage and smoking, 10 postal, and 34 baggage, mail and express cars; 2,806 box, 533 stock



111 combination, 51 fruit, 35 refrigerator, 278 flat, 1,173 coal, 4 powder, and 104 caboose cars; 1 pay, 2 officers and 18 derrick and tool cars. There are also 10 old passenger cars not numbered. Four postal cars are owned jointly with other companies.

The general balance sheet is as follows:

Stock	\$29,000,000.00
Funded debt:	
Six per cent. currency redemption bonds of 1890	\$2,500,000
Six per cent. sterling bonds of 1895	2,500,000
Five per cent. sterling bonds of 1905	1,000,000
Sinking fund five	4,296,000
Seven per cent. construction bonds outstanding	4,000
Six per cent. currency bonds on Springfield Division	1,800,000.00
Six per cent. currency bonds on Chatsworth Division	200,000.00
Balance surplus account	2,072,830.80
Balance income account	117,229.30
Liabilities, Chicago office	24,655.88
Insurance fund	
Total	\$43,819,254.54
Permanent expenditures, Illinois	\$33,000,000.00
Iowa	950,781.68
Total	\$33,950,781.68
Springfield Division	1,800,000.00
Chatsworth Division	200,000.00
Working stock of supplies	429,108.62
Bonds secured by first mortgage	
Chl. St. L. & N. O.	1,000,000.00
Assets in New York office, net	802,764.93
Assets in insurance fund	24,655.88
Investments, New Orleans line, 61,000 shares stock, and \$5,023,000 second-mortgage bonds	5,145,943.43
Total	\$43,819,254.54

The funded debt was diminished by \$97,000 sterling, sinking-fund five paid off, and increased by the \$200,000 Chatsworth Division bonds.

The earnings for the year were as follows:

	1879.	1878.	Inc. or Dec.	P. c.
Freight	\$5,116,961.90	\$5,021,376.67	I. \$95,585.23	1.9
Passenger	1,366,525.65	1,388,240.56	D. 21,714.91	1.4
Mail	142,657.50	136,422.98	I. 6,234.52	4.6
Express	134,625.71	133,441.24	I. 1,184.47	0.9
Sleeping cars	27,927.43	30,257.95	D. 2,330.52	7.7
Rents, storage and dockage	240,185.05	235,416.60	I. 4,768.45	2.0
Switching	42,162.00	44,728.33	D. 2,566.33	5.7
News agency, etc.	4,200.00	5,184.92	D. 984.92	19.0
Cairo transfer	85,025.94	61,301.74	I. 24,024.20	40.2
Mileage of cars and engines	77,020.59	83,836.95	D. 6,816.36	8.2
Total	\$7,240,182.46	\$7,140,207.94	I. \$99,974.52	1.5
Expenses	\$3,026,700.30	\$3,087,435.37	D. 60,735.07	2.0
Net earnings	\$4,213,482.16	\$4,052,772.57	I. \$160,709.59	4.0
Gross earnings per mile	5,772.15	5,685.38	I. 86.77	1.5
Net earnings per mile	3,362.14	3,227.01	I. 135.13	4.2
Per cent. of expenses	41.75	43.24	D. 1.49	3.4

The expenses decreased in spite of the addition of the Chatsworth Division to mileage worked.

The earnings of 1879 were divided as follows; the total differing from that above in the deduction of \$14,718.40 for cost of freight business over Toledo, Peoria & Warsaw:

Gross earnings line owned (\$6,676 per mile)	\$4,700,872.06
Net earnings over C. B. & W.	439,469.17
" T. P. & W.	14,718.40
Earnings over other lines	89,427.18
Cairo wharf-boat and transfer	85,925.94
Springfield Division (\$2,402 per mile)	277,835.46
Chatsworth Division (\$2,558 "	94,033.67
Total in Illinois	\$5,711,381.88
Dubuque & Sioux City (\$6,493 per mile)	927,836.14
Iowa Falls & Sioux City (\$2,630 per mile)	481,290.80
Cedar Falls & Minnesota (\$1,500 "	114,056.23
Total	\$7,234,404.06
Operating expenses	3,026,700.30
Net earnings	\$4,207,703.76
Charter tax paid state of Illinois	\$325,477.38
Taxes, Chicago & Springfield	9,158.53
" Chatsworth Division	1,550.00
" leased lines in Iowa	58,823.98
Rental, leased lines in Iowa	615,832.46
Net balance	\$3,196,920.85

The Land Department reports sales of donated lands of 19,927.78 acres to 446 persons for \$121,168.28, besides town lots for \$1,830. Sales of purchased lands to the amount of \$5,475 were made. There were sales of 10,436.60 acres canceled. The total sales of donated lands have been 2,314,143.05 acres, leaving 280,856.95 acres unsold, nearly all of which is south of Decatur and Tolono. There are on hand bills receivable and contracts for lands sold amounting to \$385,159.67. Total receipts on land accounts were \$121,559.32, of which \$102,572.97 was net.

The income account was as follows:

Net balance, as above	\$3,196,920.85
Land Department net receipts	102,572.97
Total	\$3,300,493.82
Interest on bonds	\$600,483.53
Less interest collected on bonds of New Orleans line \$102,321.84	
Less saving on exchange	10,888.52
	113,210.36
Balance of interest account	\$556,273.17
Dividends, 6 per cent	1,740,000.00
Construction account in Illinois	386,016.15
Total	2,682,289.32
Balance of income for the year	\$617,204.50
Balance at credit of income, Dec. 30, 1878	1,455,635.30
Balance income account, Dec. 31, 1879	\$2,072,839.80

The traffic for the year was as follows:

	1879.	1878.	Inc. or Dec.	P. c.
Train mileage				
Passenger	1,561,041	1,523,446	I. 37,595	2.5
Freight	2,028,631	2,724,182	I. 204,449	7.5
Service	104,693	94,878	I. 9,815	10.4
Switching	866,006	778,153	I. 87,853	11.3
Total	5,460,371	5,120,659	I. 339,712	6.6
Passengers carried	1,807,744	1,723,293	I. 84,451	4.8
Passenger mile age	44,586,972	43,849,207	I. 737,765	1.7
Tons freight carried	2,324,485	2,067,832	I. 256,653	12.4
Ton mileage, southward	170,224,546	144,071,320	I. 26,153,226	18.2
Ton mileage, northward	165,246,314	162,274,371	I. 2,971,943	1.8
Total	335,470,860	306,345,691	I. 29,125,169	9.5
Av. train load:				
Passengers, No.	28.56	28.78	D. 0.22	0.8
Freight, tons	114.54	112.45	I. 2.09	1.9

The average earnings and expenses per train mile were as follows in cents:

	1879.	1878.	Decrease.	P. c.
Earnings	132.76	130.40	0.64	4.8
Expenses	55.43	60.50	4.87	8.1
Net earnings	77.33	70.10	1.77	2.5

The cost of locomotive service per mile was 14.15 cents, a decrease of 1.13 cents from 1878.

The average receipts per passenger and per ton per mile were as follows, in cents:

	1879.	1878.	Decrease.	P. c.
Per passenger per mile	3.05	3.17	0.12	3.8
Per ton per mile:				
North-bound	1.54	1.56	0.02	1.3
South-bound	1.51	1.72	0.21	12.2
Through	1.05	1.17	0.12	10.3
Local	1.60	1.73	0.07	4.0
Average of all	1.52	1.64	0.12	7.3

On the suburban trains, between Chicago and Grand Crossing, the number of passengers carried in 1879 was 802,703; mileage, 3,905,047; average trip, 4.86 miles.

During the year the freight equipment was increased by 200 box, 50 stock, and 10 fruit cars. Three engines were rebuilt and the usual repairs made.

Three new iron and two wooden truss bridges were built, and 400 feet of bridging filled in; 2,829 feet of wooden bridging were rebuilt.

In the Road Department, 4.75 miles new sidings were laid and 113 miles of fence built. There were 7,892 tons steel and 1,384 tons iron rails used in renewals, and 49.67 miles of track ballasted, 21.58 miles with stone. There are now 543.40 miles of track laid with steel. The Chicago and Cairo yards were enlarged.

The report of the directors is as follows:

"Comparing the net traffic with that of 1878, the increase is \$181,691. The net amount yielded in 1879 by the traffic was \$3,196,920, and the net receipts from land, above all expenses, amounted to \$102,572. In addition, the company received \$102,321 interest on its investment in bonds secured by the first mortgage of the Chicago, St. Louis & New Orleans Railroad Company. Thus, the aggregate net income was \$3,401,815. From this fund, the company has paid the interest on its bonds, and two dividends on its shares. It business has required additional equipment; 260 freight cars have been built, and 3 heavy engines are in course of building in the company's shops. The outlays for equipment, together with the cost of considerable additional side track and important purchases of real estate, as well as the cost of additional double track laid between Chicago and Hyde Park, with new station buildings, etc., have also been taken out of the income account, these construction charges aggregating \$386,016. After all these deductions, there is still a balance of income for the year of \$617,204, which, added to \$1,455,635 at credit of income at the close of the previous year, makes \$2,072,839 now carried forward to the credit of that account.

"The branch line mentioned in the last report, running southwest from Otto, has been extended 18.83 miles, and another branch, running westerly from the first toward our main line, is nearly graded, and 12 miles of the track have been laid with iron rails; 7,891 tons of new steel, and 1,384 tons new iron rails were laid on the road and branches last year, exclusive of the iron rails used in the extension of the new branch lines. Fifty miles of track have been ballasted with stone and gravel. Of the 365 miles from Chicago to Cairo, 315 miles are laid with steel; it is proposed to complete the whole distance in steel at an early day. We now have 543 miles of steel rail north of the Ohio. The extraordinary demand for the grain and provisions of the northwest at higher prices than of late years has strengthened the resources of the farmers. This is particularly evidenced in the largely increased volume of the Chicago lumber traffic, the receipts last year at that point reaching the astonishing amount of 1,451,000,000 feet. It is probable that the population of Illinois has never enjoyed so large a prosperity as during the past season. The shareholders will note that the later investment in the Southern line, made since 1877, is \$1,600,000 of first-mortgage bonds, brought forward at par. The opportunity of selling these bonds at a premium has been refused.

"The extension of the Southern line to East Cairo has materially diminished the time occupied by trains in crossing the Ohio. The time between New Orleans and East Cairo has been shortened five hours, and trains are running with regularity and safety. For the Southern line 10,000 tons more of steel rails have been purchased, and it is proposed to reduce its grades at the northern end, this tending to increase its capacity for business and reduce its expenses. Sixty miles more have been ballasted, and additional machine shops and other building erected. Various projects are mooted to secure a share of the export business through the southern ports. It is intended to have this, the shortest through line, put in perfect order as rapidly as it can be done consistently with reasonable economy. From the superiority of its condition, and the fact that it is from 100 to 150 miles more direct than any competing system of roads, it is believed that it will practically control the traffic between the northwest and the Gulf."

#### Consolidation Coal Company.

This company owns a large coal property, in the Cumberland region, and also owns the Cumberland & Pennsylvania Railroad and the Cumberland Branch, which furnish the mines of that region with their only outlet. Like most of the coal companies, its report for 1879 does not distinguish between the receipts from its railroad and its coal properties.

The bonded debt amounts to \$2,576,500, having been reduced \$188,000 during the year.

The actual receipts for the year were as follows:

Gross receipts from coal and railroad property	\$1,614,945.73
Expenses, renewals and improvements	1,258,382.38
Net earnings	\$356,563.35
Interest and sinking fund	239,692.36
Net surplus	\$116,870.99

The income account for the year was as follows:

Balance, Dec. 31, 1878	\$116,396.67
Net earnings, as above	356,563.35
Total	\$472,960.02
Interest paid	\$161,853.02
Bonds retired, cost	177,939.34
Discount on \$500,000 consolidated bonds to retire equal amount of old bonds	45,733.75
	385,526.11
Balance, Dec. 31, 1879	\$87,633.91

The coal business of the year was as follows, in tons:

	1879.	1878.	Increase.	P. c.
Mined from company's lands	483,692	404,015	79,677	19.7
Carried on company's roads	1,700,113	1,650,632	49,481	3.0

The report says: "The preceding exhibit shows a considerable increase in the business of the company and an increase in the output of the entire region, which is an encouraging fact in the face of the active competition of lower-priced steam coals, both foreign and domestic, the ruinously low prices of anthracite, the miners' strike in the fall of

1879, and the continued general depression of business for the greater part of the past year.

"The improved condition of the general business of the country warrants the expectation of an increase in the company's business for the year 1880, and with more profitable results than have been possible with the unprecedentedly low prices for coal which have prevailed for the past three years.

"Sept. 1, 1879, the miners struck for an increase of 25 per cent. upon the 40 cents per ton paid since March, 1878, coupling the demand with other onerous conditions. This was resisted by all the companies in the region, excepting one of them located near Piedmont, and the result was an almost total suspension of business for six weeks.

"About the middle of October work was resumed at the advance demanded—without other conditions—and an equivalent advance in the wages of outside labor followed as a consequence.

"The results of the strike have materially affected the net results of the company's business for the past year.

"Every economy consistent with the proper management and preservation of the property of the company in all departments has been observed.

"Its mines, railroads, wharves, farms, etc., have been maintained in a condition of thorough efficiency.

"The mining operations of the company have been carried on during the past year without accidents or expenses of extraordinary character, and generally upon the system heretofore observed. The mines are capable of an output of 3,500 tons per day.

"The railroads of the company have been improved during the past year by the addition of 272 tons heavy steel rail. Everything in the Road Department is in superior condition.

"The rolling stock of the company has been improved during the year by the rebuilding of 4 large locomotives, and everything in this department has been placed in a thoroughly efficient condition, capable of doing promptly a largely increased trade. The work has been done at the company's shops at Mount Savage. Some important economies have been accomplished in this department in the past year.

"A change was made in the official organization of the Company at Cumberland in June last by dispensing with the office of Second Vice-President and appointing a Resident Agent to discharge the duties heretofore devolving upon the Second Vice-President."

#### Montpelier & Wells River.

This company owns a line from Wells River, Vt., to Montpelier, 38 miles. The present company acquired the road through foreclosure and has no bonded debt, the stock representing the old bonds. The report is for the year ending Dec. 31.

The equipment consists of 3 locomotives; 4 passenger, 1 combination and 3 baggage and mail cars; 25 flat, 23 box, 4 stock and 1 caboose car; 1 snow-plow and 1 derrick car. There are also 10 flat cars on the road to be paid for by installments.

The total debt of the company at the close of the year was \$66,965.28. This was for equipment bought and for foreclosure expenses, and had been reduced from \$91,954.65, the amount on Jan. 1, 1877, when the present company took possession of the road. The stock is \$800,000.

The earnings for the year were as follows:

	1879.	1878.	Inc. or Dec.	P. c.
Passengers	\$27,170.81	\$22,531.21	I. \$4,639.60	20.6
Freight	50,344.51	44,387.62	I. 5,956.89	13.4
Express, mail, etc.	7,004.81	6,953.08	I. 51.73	0.2
Total	\$84,520.13	\$73,511.91	I. \$11,008.22	15.0
Expenses	\$4,962.00	\$3,750.38	I. \$1,211.62	21.1
Net earnings	\$19,558.07	\$19,861.53	D. \$303.46	1.5
Gross earn. per mile	2,224.21	1,934.53	I. 289.68	15.0
Net	514.76	522.67	D. 7.91	1.5
Per cent. of expenses	76.86	72.90	I. 3.97	5.3

During the year 100 tons steel, 128 tons new iron and 80,548 new ties were laid; 3,000 feet of new sidings and 500 rods new fence built. Several bridges and the Plainfield trestle were rebuilt. The equipment was generally kept in good condition.

The income account was as follows:

Assets, Jan. 1, 1879	\$6,848.82
Earnings for 1879	\$4,520.13
Total	\$91,368.95
Expenses, as above	\$4,962.00
Dividend, 2 per cent.	16,000.00
Cash and cash assets, supplies and balances due	10,406.80
	\$91,368.95

The company expect to pay off their floating debt gradually from net earnings, and to pay moderate dividends at the same time.

#### Cincinnati Southern.

The Cincinnati Railway Company has worked the 158 miles of this road from Cincinnati to Somerset, Ky., as lessee from the Trustees, since May 23, 1879, and at the recent meeting in Cincinnati the following statements were made for the period from that date to Dec. 31, seven months and eight days.

The earnings for that period were as follows:

Passengers	\$112,737.06
Freight	283,200.31
Other sources	20,210.41
Total (\$2,633.85 per mile)	\$416,147.78
Expenses (\$2.90 per cent.)	136,893.03

Net earnings (\$1,767.43 per mile) \$279,254.75

The proportion of expenses appears low, but it must be remembered that maintenance of way cost nothing, or a mere trifle. The income account was as follows:

Common Carrier Co., earnings on hand May 23	\$31,450.75
Receipts on calls on capital stock	990,945.00
Operating accounts	452,016.66
Materials, etc. to contractors and trustees	9,246.77
Total receipts	\$1,492,659.18
Common Carrier Co., for equipment, etc. \$263,932.85	
Trustees, reservation of earnings	40,399.61
Trustees as rental	287,491.88
Operating accounts	160,610.95
Interest on paid-up stock	20,506.95
Equipment, etc., bought	180,281.00
	953,223.24

Balance, Dec. 31, 1879 \$539,435.94

Of this balance, the sum of \$519,772.54 was the unexpended balance of assessments paid in on capital stock.

At the date of the report the company had 38 engines; 20 passenger and 5 baggage cars; 765 freight and 19 caboose cars. Besides this, there were under contract and not yet delivered 2 passenger and 5 baggage cars; 225 box, 50 stock, 100 coal and 6 caboose cars.

The company has just received possession of the 178 miles from Somerset to Chattanooga, and will run its first through passenger trains, probably next week.